DRAFT
ENVIRONMENTAL ASSESSMENT AND HABITAT CONSERVATION PLAN

ISSUANCE OF AN ENDANGERED SPECIES ACT §10(a)(1)(B)
INCIDENTAL TAKE PERMIT TO PREDEVELOPMENT LTD
FOR TAKE OF LAKE ERIE WATERSNAKE

August 2005

U.S. Fish and Wildlife Service
1 Federal Drive
BHW Federal Building
Fort Snelling, MN 55111

Habitat Conservation Plan Prepared and Submitted by:

PREDEVELOPMENT LTD
2335 Second Street
Cuyahoga Falls, Ohio 44221

TABLE OF CONTENTS

1.0 PROJECT PURPOSE AND NEED....1
1.1 PURPOSE.... .1
1.2 NEED....1
1.3 BACKGROUND....1
1.4 PUBLIC PARTICIPATION....2
1.5 SCOPE OF ANALYSIS....6

2.0 ALTERNATIVES....6
2.1 ALTERNATIVES NOT CONSIDERED IN DETAIL....6
2.2 ALTERNATIVE 1 - NO ACTION....6
2.3 ASPECTS COMMON TO BOTH ACTION ALTERNATIVES....6
2.3.1 SEASONAL CONSTRAINTS ON GROUND-DISTURBING CONSTRUCTION....6
2.3.2 CONSTRUCTION OF SEASONAL RESIDENCE INCLUDING DECKS/PATIOS AND GARAGE....7
2.3.3 ABANDONMENT AND CLOSURE OF THE OLD SHORELINE ACCESS ROAD....7
2.3.4 CONSTRUCTION OF A DRIVEWAY....7
2.3.5 CONSTRUCTION OF BOARDWALKS, TRAILS, AND WALKWAYS....9
2.3.6 CONSTRUCTION/PLACEMENT OF UTILITIES INCLUDING SEWAGE TREATMENT FACILITIES....10
2.3.7 FIRE PITS....10
2.3.8 AREAS OF VEGETATIVE CLEARING, THINNING, AND MAINTENANCE....10
2.3.9 MOWING....12
2.3.10 MINIMIZATION OF ACTIONS WITHIN ZONES 1 AND 2....13
2.3.11 DOCK CONSTRUCTION....13
2.3.12 MANAGEMENT OF PETS....14
2.3.13 RESEARCH SUPPORT AND PRE-CONSTRUCTION COORDINATION....14
2.3.14 REPORTING OF MORTALITIES AND INJURIES OF LEWS ON THE 6.45-ACRE TRACT....14
2.3.15 RESPONSIBILITY OF THE PROPERTY OWNERS....14

2.3.16 MONITORING AND REPORTING....14
2.4 ALTERNATIVE 2 – MINIMAL CLEARING/PROPOSED ACTION....15
2.4.1 AREAS OF VEGETATIVE CLEARING, THINNING, AND MAINTENANCE 15
2.5 ALETERNATIVE 3....15
2.5.1 AREAS OF VEGETATIVE CLEARING, THINNING, AND MAINTENANCE.....15
2.6 MEASURES TO AVOID AND MINIMIZE TAKE....15

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT 18
3.1 SITE DESCRIPTION....18
3.2 VEGETATION 19
3.3 WILDLIFE 19
3.3.1 Migrating Birds....20
3.3.2 Rare Species 20
3.3.2.1 Lake Erie Watersnake 21
3.3.2.1.1 Background 21
3.3.2.1.2 Life History 21
3.3.2.1.3 Lake Erie Watersnake on U.S. Islands....22
3.3.2.1.4 Lake Erie Watersnake on the 6.4-acre Tract 22
3.3.2.2 Indiana Bat....23
3.4 WETLANDS AND OTHER SURFACE WATER FEATURES 23
3.5 GEOLOGY/SOILS 24
3.6 LAND USE 24
3.7 AIR QUALITY 25
3.8 WATER QUALITY 25
3.9 HAZARDOUS, TOXIC, OR RADIOACTIVE MATERIALS 25
3.10 ENVIRONMENTAL JUSTICE....25
3.11 CULTURAL RESOURCES 25
4.0 ENVIRONMENTAL CONSEQUENCES 27
4.1 ALTERNATIVE 1 - NO ACTION....27
4.1.1 Direct and Indirect Effects....28
4.1.1.1 Vegetation....28
4.1.1.2 Migrating Birds 28
4.1.1.3 Lake Erie Watersnake 28
4.1.1.3.1 Summer habitat removal and/or degradation 29
4.1.1.3.2 Winter/transitional habitat removal and/or degradation 29
4.1.1.3.3 Harassment and/or predation caused by pets....30
4.1.1.3.4 Mortality caused by lawn mowing....30
4.1.1.3.5 Disturbance/disruption of normal behavior 30
4.1.1.3.6 Vehicular strikes 30
4.1.1.4 Cultural Resources....31
4.1.2 Cumulative Effects....31
4.1.2.1 Vegetation....31
4.1.2.2 Migrating Birds 32
4.1.2.3 Lake Erie Watersnake 32
4.1.2.4 Cultural Resources....33

4.2 ALTERNATIVE 2 33
4.2.1 Direct and Indirect Effects 33
4.2.1.1 Vegetation 33
4.2.1.2 Migrating Birds 34
4.2.1.3 Lake Erie Watersnake 34
4.2.1.3.1 Summer habitat removal and/or degradation 35
4.2.1.3.2 Winter/transitional habitat removal and/or degradation 35
4.2.1.3.3 Harassment and/or predation caused by pets 36
4.2.1.3.4 Mortality caused by lawn mowing 36
4.2.1.3.5 Disturbance/disruption of normal behavior 37
4.2.1.3.6 Vehicular strikes 37
4.2.1.4 Cultural Resources 38
4.2.2 Cumulative Effects 38
4.2.2.1 Vegetation 38
4.2.2.2 Migrating Birds 39
4.2.2.3 Lake Erie Watersnake 39
4.2.2.4 Cultural Resources 40
4.3 ALTERNATIVE 3 –WITH 15-YEAR ITP/PROPOSED ACTION 40
4.3.1 Direct and Indirect Effects 40
4.3.1.1 Vegetation 40
4.3.1.2 Migrating Birds 41
4.3.1.3 Lake Erie Watersnake 41
4.3.1.3.1 Summer habitat removal and/or degradation 41
4.3.1.3.2 Winter/transitional habitat removal and/or degradation 42
4.3.1.3.3 Harassment and/or predation caused by pets 43
4.3.1.3.4 Mortality caused by lawn mowing 43
4.3.1.3.5 Disturbance/disruption of normal behavior 44
4.3.1.3.6 Vehicular strikes 44
4.3.1.4 Cultural Resources 44
4.3.2 Cumulative Effects 45
4.3.2.1 Vegetation 45
4.3.2.2 Migrating Birds 45
4.3.2.3 Lake Erie Watersnake 46
4.3.2.4 Cultural Resources 47

5.0 LIST OF PREPARERS 54
6.0 CONSULTATION AND COORDINATION WITH THE PUBLIC AND OTHERS 54
7.0 PUBLIC COMMENT ON DRAFT EA AND RESPONSE 54
8.0 HABITAT CONSERVATION PLAN 54
8.1 BIOLOGICAL GOALS AND OBJECTIVES 55
8.2 IMPACTS OF THE PROPOSED ACTION 56
8.3 IMPACT AVOIDANCE, MINIMIZATION, AND MITIGATION 56
8.4 MONITORING 56
8.5 CONSISTENCY OF THE PROPOSED ACTION WITH THE RECOVERY PLAN 56
8.6 PROJECT FUNDING 56
8.7 CHANGED OR UNFORESEEN CIRCUMSTANCES 57
8.8 HCP ASSURANCES 58
8.9 AMENDMENTS TO THE HCP 59
8.10 AMENDMENTS TO THE PERMIT 59
9.0 REFERNCES CITED 60

FIGURES

Figure 1–1. Location of residential development proposed by Predevelopment LTD on Long Point, Kelleys Island, in western Lake Erie, Erie County, Ohio.....3

Figure 1–2. Conceptual design of proposed residential development on the 6.45-acre tract.....4

Figure 1–3. Enlarged concept design of proposed residential development on the 6.45-acre tract.....5

Figure 2-1. Management Zones for Alternative 2 on the 6.45-acre tract.....8

Figure 2-2. Management Zones for Alternative 3 on the 6.45-acre tract.....9

TABLES

Table 2–1. Limits on the season and area of mowing included in each action alternative.....12

Table 2–2. Summary of measures to avoid or minimize take, or to enhance LEWS habitat on the 6.45-acre tract, integral to proposed alternatives.....16

Table 4–1. Summary of anticipated effects of Alternatives 1 through 3.....49

Table 5–1. The following individuals prepared portions of the Habitat Conservation Plan and/or the Environmental Assessment.....54

Table 8–1. HCP implementation requiring funding beyond that supporting development and construction activities.....57

Table 8–2 Response to changed circumstances.....58

APPENDICES

Appendix A. Agency Correspondence

Appendix B. U.S. Fish and Wildlife Service Lake Erie Watersnake Management Guidelines

Appendix C. Legal Description of 6.45-acre Predevelopment LTD property

Appendix D. Ohio Department of Natural Resources, Office of Coastal Management Coastal Consistency Letter to Predevelopment LTD

Appendix E. Phase I Cultural Resources Investigations of the Predevelopment, LTD Project on Long Point of Kelleys Island, Erie County, Ohio

Appendix F. Deed restriction for adherence to terms of the HCP and Incidental Take Permit

ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
LEWS	Lake Erie Watersnake (*Nerodia sipedon insularum*)
LTD	Limited Liability Company
OEPA	Ohio Environmental Protection Agency
OHW	Ordinary high watermark, meaning the line on the shore established by fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3). On the 6.45-acre tract, and depending in part upon specifics of the lot topography, OHW may be 50 ft or more landward of the shoreline.
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
USACE	U.S. Army Corps of Engineers

GLOSSARY

building envelope	Area where structures may be located in accordance with the Village of Kelleys Island zoning regulations.
changed circumstances	Changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (50 CFR §17.3).
covered species	Species that have been adequately addressed in an HCP and are therefore included on the permit or, alternately, for which assurances are provided to the permittee that such species will be added to the permit if listed under certain circumstances. Covered species are also subject to the assurances of the No Surprises Rule.
cumulative effects	Under NEPA regulations, the incremental environmental impact or effect of the action together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR §1508.7). Under ESA § 7 regulations, the effects of future state or private activities not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR §402.02).
direct effects	Effects caused by the action that occur at the same time and place (40 CFR §1508.8).
endangered species	"…species which is in danger of extinction throughout all or a significant portion of its range" [§ 3(6) of ESA].
footprint	The area on the ground surface that is covered and made inaccessible to LEWS.
forest	A dense growth of trees and underbrush covering a large tract.
harm	Defined in regulations implementing the ESA promulgated by the Department of the Interior as an act "which actually kills or injures" listed wildlife; harm may include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (50 CFR §17..3).
harass	Defined in regulations implementing the ESA promulgated by the Department of the Interior as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering" (50 CFR §17..3).
incidental take	Take of any Federally-listed wildlife species that is incidental to, but not the purpose of, otherwise lawful activities [ESA §10(a)(1)(B)].
Incidental Take Permit	A permit that exempts a permittee from the take prohibition of §9 of the ESA issued by the Service or NMFS pursuant to §10(a)(1)(B) of the ESA.
indirect effects	Effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur (50 CFR §402.02).
No Surprises Rule	The Habitat Conservation Plan Assurances Rule, which codifies assurances provided through §10(a)(1)(B) permits issued under the ESA. The Rule provides regulatory assurances to the holder of an Incidental Take Permit that no additional land use restrictions or financial compensation will be required of the permit holder with respect to species covered by the permit, even if unforeseen circumstances arise after the permit is issued, provided the HCP is being properly implemented.
take	Under § 3(18) of the ESA, "…to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" with respect to Federally-listed endangered species of wildlife. Federal regulations provide the same taking prohibitions for threatened wildlife species [50 CFR 17..31(a)].
threatened species	"…species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" [§ 3(19) of the ESA].
woodland	For purposes of this Environmental Assessment, areas with tree cover between 10% and 40%, characteristic of developed areas with sparse/scattered tree cover in maintained

landscapes.

DRAFT ENVIRONMENTAL ASSESSMENT AND HABITAT CONSERVATION PLAN FOR THE ISSUANCE OF AN ENDANGERED SPECIES ACT §10(A)(1)(B) INCIDENTAL TAKE PERMIT TO PREDEVELOPMENT LTD FOR TAKE OF THE LAKE ERIE WATERSNAKE

1.0 PROJECT PURPOSE AND NEED

1.1 PURPOSE

This Environmental Assessment (EA) evaluates an application for an Incidental Take Permit (ITP) and the associated Habitat Conservation Plan (HCP) submitted by Predevelopment LTD for take of LEWS that may result from construction and use of a seasonal residence on the 6.45-acre Long Point tract. The §10(a)(1)(B) permit process ensures effects of incidental take will be minimized and mitigated to the maximum extent practicable and will not appreciably reduce the likelihood of the survival and recovery of the LEWS in the wild.

1.2 NEED

Any alternative selected by the Service must limit effects to the species to the maximum extent practicable, and not preclude recovery of the LEWS. All three seasonal phases (summer habitat, winter hibernation habitat, and travel corridors between these two habitats) must be protected along with minimizing direct harm to individual snakes. Because the Service must treat HCP/ITP applicants as equitably as possible, it is necessary that the Service must not include components in a selected alternative that it could not extend, without risk to the species, to future HCP/ITP applicants for similar actions, given consideration of specific circumstances and current information. Since an HCP/ITP application is a voluntary action by the applicant, the economic impacts to and developmental latitude for the landowners need to be considered. The Service has no ability under the ESA to preclude or control development of private land, although such development may be influenced through the HCP/ITP process. The Service seeks to work in partnership with Predevelopment LTD to conserve the LEWS while meeting landowner needs.

1.3 BACKGROUND

In 2002, Predevelopment LTD purchased approximately 6.45 acres on Long Point, Kelleys Island, Ohio (Figure 1–1). Long Point is a 100± acre peninsula at the northeastern extreme of Kelleys Island. Predevelopment LTD purchased the property for development of a private residence intended primarily for seasonal occupation. Although the specific design and precise location for the residence has not yet been developed, Predevelopment LTD prepared a conceptual depiction of the proposed development (Figure 1-2 and Figure 1-3).

The Lake Erie Watersnake (*Nerodia sipedon insularum*), a Federally-listed threatened species, inhabits Kelleys Island, including Long Point (King 1998). Lake Erie Watersnakes (LEWS) were observed in May, 2000 and June 2004, in and around an old stone foundation on the 6.45-acre tract, in the grassy inland areas on Long Point, as well as along the shoreline and in the nearby water (pers. comm., A. Zimmerman, USFWS; pers. comm., R. King and K. Stanford, Northern Illinois University).

In an December 10, 2002 letter, the Reynoldsburg, Ohio Field Office of the U.S. Fish and Wildlife Service (Service) notified Predevelopment LTD that the proposed development had potential to affect the LEWS

(Appendix A). The Service suggested Predevelopment LTD prepare a Habitat Conservation Plan (HCP) in compliance with §10 (a)(1)(B) of the Endangered Species Act of 1973, as amended.

1.4 PUBLIC PARTICIPATION

A Notice of Availability will be published in the Federal Register when the Service receives a complete ITP application package from Predevelopment LTD and a press release will be issued by the Service. The notice will be followed by a 60-day comment period prior to a final decision by the USFWS.

Figure 1–1. Location of residential development proposed by Predevelopment LTD on Long Point, Kelleys Island, in western Lake Erie, Erie County, Ohio.

Figure 1–2. Conceptual design of proposed residential development on the 6.45-acre tract.

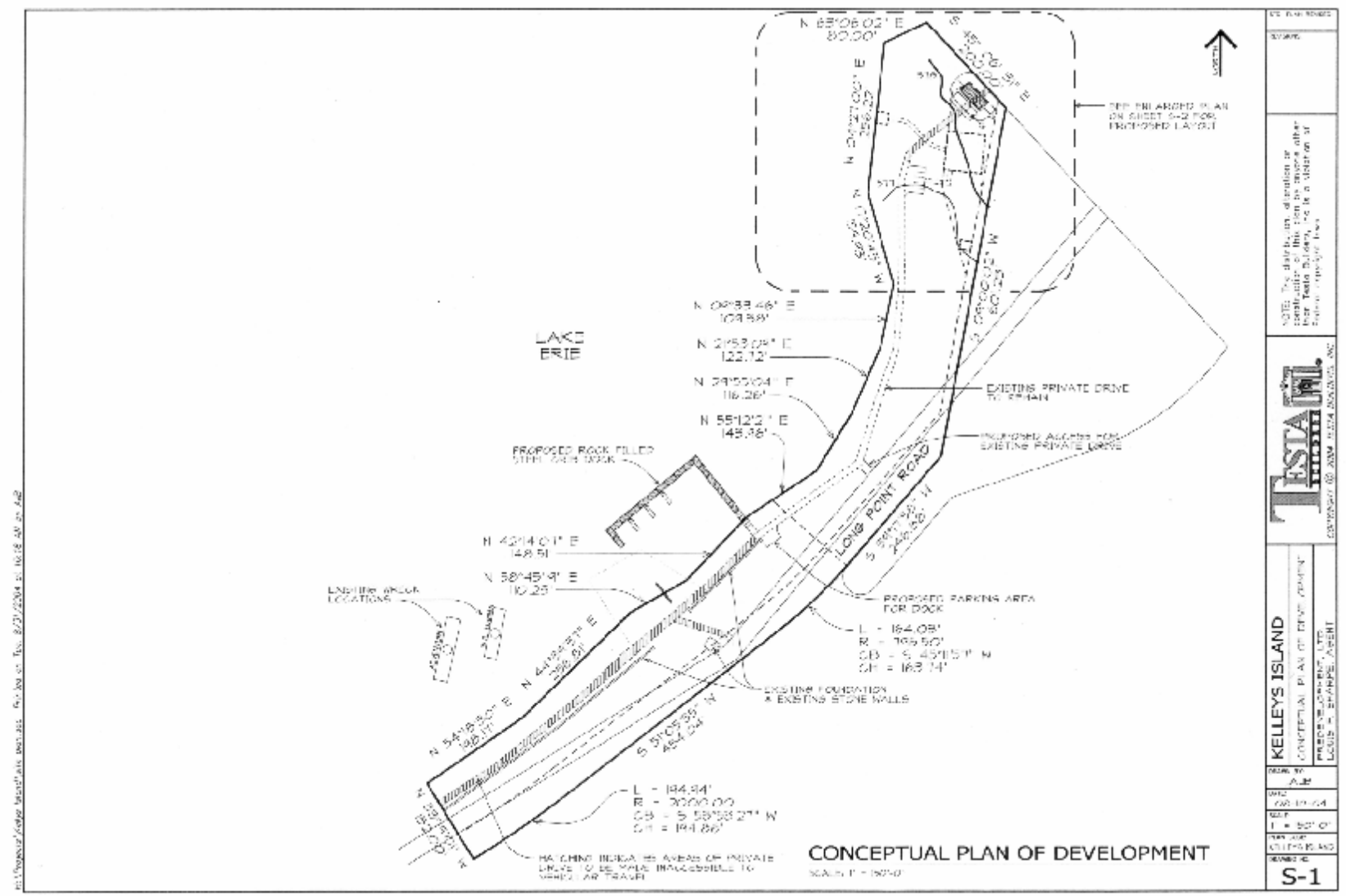
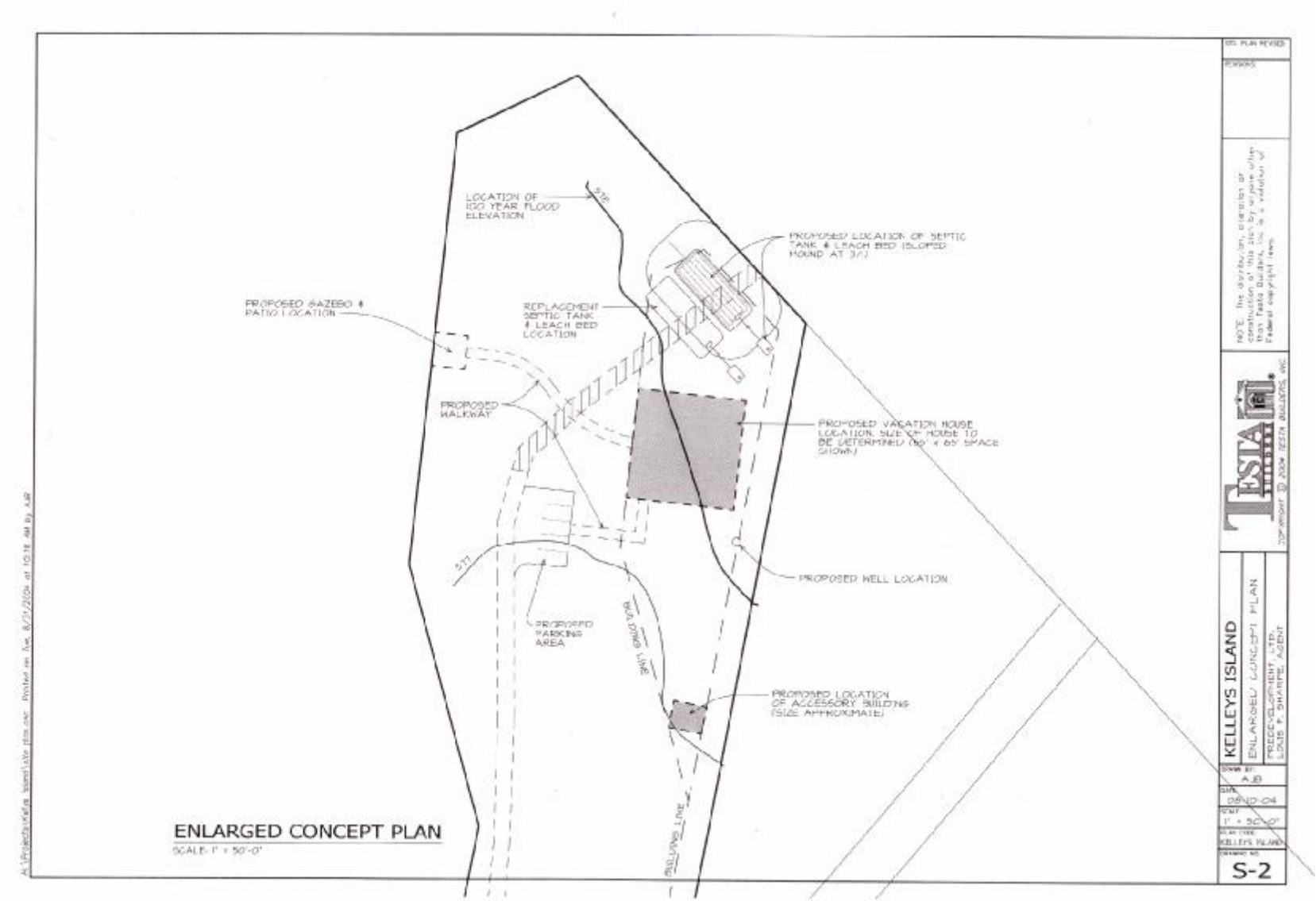


Figure 1–3. Enlarged concept design of proposed residential development on the 6.45-acre tract.



1.5 SCOPE OF ANALYSIS

In accordance with the National Environmental Policy Act, and applicable Council on Environmental Quality (CEQ) guidance, issues and resources with reasonable potential to be affected by proposed alternatives are central to this EA. Other issues (e.g., air quality; hazardous, toxic, or radioactive wastes or materials) were considered, but were not present on the site or would not be substantially affected by the alternatives, and therefore did not play an important role in this analysis. The effects analysis in this EA focuses upon the issues pertinent to the proposed activity, the resources with potential to be affected, and the decision to be made.

2.0 ALTERNATIVES

2.1 ALTERNATIVES NOT CONSIDERED IN DETAIL

Alternatives with three or more seasonal residences were considered. However, current zoning on Kelleys Island prohibits development within 125 feet of the Lake Erie shoreline. Therefore, only up to 2 residents could be constructed on the 6.45-acre tract in compliance with the Village of Kelleys Island zoning. However, each action alternative considers the development of only one residence which meets the needs of Predevelopment LTD.

2.2 ALTERNATIVE 1 – NO ACTION

Under the No Action Alternative, the Service would not issue an ITP and no HCP would be implemented. This alternative does not forbid sale of the land or construction and development of the property. Predevelopment LTD could reasonably be expected to sell the property, or proceed with construction in a manner similar to that currently occurring in numerous places on Kelleys Island and on other islands inhabited by the LEWS. If Predevelopment LTD constructed without an ITP, violations of §9 of the ESA may result and warrant civil and criminal enforcement actions by the Service.

If development on the 6.45-acre tract occurred without an HCP and ITP, it is likely few if any of the measures designed to avoid and minimize take proposed herein would be implemented.

2.3 ASPECTS COMMON TO BOTH ACTION ALTERNATIVES

Alternative 2 (Proposed Action) and Alternative 3 include the development of a portion of the 6.45-acre property that is currently undeveloped.

Both of the alternatives includes substantial measures to avoid or minimize take, relative to the typical construction practices currently occurring in numerous locations within the LEWS range. Many of the same measures are proposed features of each action alternative. Design features common to Alternative 2 and Alternative 3 are described below (see also Table 4-1).

2.3.1 Seasonal Constraints on Ground-Disturbing Construction

To minimize the potential for effects to hibernating LEWS, and in accordance with the Lake Erie Watersnake Guidelines (USFWS 2003, Appendix B), proposed ground-disturbing excavation/construction,

and burning associated with these activities, in Alternatives 2 and 3 would occur only between April 16 and October 14 when both air and ground temperatures are above 60°F.

2.3.2 Construction of Seasonal Residence including Decks/Patios and Garage

Construction of one seasonal residence will be limited to a footprint of 3500 ft^2. Architecture of the structures would utilize 1½- or 2-story elements. The residence would be constructed with concrete–floored crawlspaces. Foundation walls would be constructed in a manner that would exclude LEWS from the crawlspace beneath the building to minimize the potential that LEWS will access areas within structures and become a nuisance. One attached or detached garage would be no larger than 1500 ft^2. One or more decks/patios not exceeding a combined total of 2500 ft^2 would be erected.

Excavation would be limited to the trench for construction of the foundation/footers. Excess topsoil, beyond what is required for building codes, would be stripped in areas where concrete slabs will be constructed. Stripped topsoil would be used in construction of the septic mounds, lawn, or would be removed from the site and disposed of in an area of unsuitable winter or summer LEWS habitat. Construction clearing with machinery and burning would be limited to the areas respective to Alternatives 2 and 3.

Buildings would not occur within management Zone 1 (Figure 2-1 for Alternative 2) or within 125 feet of the shoreline in accordance with local zoning.

2.3.3 Abandonment and Closure of the Old Shoreline Access Road

Approximately 700 ft. of the old shoreline road from near the north end of the Lincoln stone wall south to the property line, as well as the existing access from Long Point Lane will be abandoned and closed to all but pedestrian traffic. The closing will occur concurrent with the opening of the new access point approximately 380 ft north of the existing access from Long Point Lane. Both actions are expected in the spring of 2005. A rustic fence and gate will be installed at the existing access and at the terminus of the abandoned portion of the old shoreline road near the end of the Lincoln stone wall and the dock area. The remaining approximately 750 feet of northerly old shoreline road and the new access point will remain open and be improved in accordance with guidelines established herein to provide private access to the dock to the south and the residential building envelope to the north.

2.3.4 Construction of a Driveway

Under Alternatives 2 and 3, the northerly portion of the old shoreline road would be improved and used as a driveway on the 6.45-acre tract. Improvements would occur by placing gravel directly on the ground surface or upon a geotechnical construction fabric. No culverts or ditches would be constructed. Disturbed areas, if any, would be seeded. Light colored gravel would cover the driveway (and may discourage use of the road by sunning snakes, relative to dark gravel or paving). Brick pavers may be used in the auto court area (portion of driveway at the house/garage). The driveway would be no wider than 12 ft. Additionally, signs that promote slow vehicular speeds and advise drivers of the potential occurrence of LEWS would be posted along the dock access road.

Figure 2-1. Management Zones for Alternative 2 on the 6.45-acre tract.

Figure 2-2. Management Zones for Alternative 3 on the 6.45-acre tract.

2.3.5 Construction of Boardwalks, Trails, and Walkways

A boardwalk or other path could be constructed on the property within Zones 2 and 3. A boardwalk would include open areas between wooden planks, and space between the boardwalk and ground that would allow LEWS to move freely under or atop of the structure. During the summer season, LEWS are commonly observed beneath decks constructed in this style (pers. comm., A. Zimmerman, USFWS). Other trails and walkways would be constructed of paving stones/natural rock. Boardwalk/trail construction within Zone 2 would be limited to a single path no wider than 6 ft, constructed similarly to a deck, or in another manner

that does not include ground coverings impervious to LEWS. The path may terminate in a platform no larger than 1200 ft^2, which may be within Zone 2. The platform would be constructed as a deck or rock crib platform. The crib would be filled with Size A (18 inch to 30 inch) and/or Size B (12 inch to 24 inch) rock, and would be constructed in a manner similar to the cribs commonly frequented by LEWS elsewhere on the island. The rock crib design does not include the usage of mesh, wiring, or paneling of any kind that would make the interior of the structure inaccessible to the LEWS. The rock may be excavated during construction activities described herein, or would be collected/purchased from areas not providing LEWS habitat (e.g. a quarry). The rock would not be collected from the shoreline area of Kelleys Island or from other areas that might provide winter or summer habitat. The rock crib platform may be capped with concrete.

Inclusion of a rock crib platform and any other facilities in this analysis does not preclude the need for other permits, if any.

2.3.6 Construction/Placement of Utilities Including Sewage Treatment Facilities

The leach bed for the septic system would be constructed in a soil mound due to the shallow average soil depth on the 6.45-acre tract, and with the recommendation of Karen Gerold, Director of Environmental Health, Erie County General Health District. The mound would require a non-forested area approximately 120 ft long and 62 ft wide, and would be approximately 5 ft in height. Landscaping at the mound would not include rock or other features providing cover to discourage LEWS from using the mounds to reduce the chance of LEWS exposure to household waste (e.g., wastewater, cleaners, detergents).

A private water well and filtration system would also be developed. This facility would require little surface area, and would be developed within Zone 2. Electric and telephone lines would be run from the central utility corridor/access road directly into Zone 2.

2.3.7 Fire pits

A single fire pit, in a permanent location, may be located in Zone 2 or 3 > 69 feet of the shoreline. The fire pit will be a maximum of 10 ft^2 and will not be filled with materials (e.g. brush, leaves, branches, logs) until the time of burning to avoid LEWS injuries.

2.3.8 Areas of Vegetative Clearing, Thinning, and Maintenance

A limited area, varying in size for Alternatives 2 and 3, within the 6.45-acre tract would be cleared of forest cover. Outside the area allowed for construction, trees would be cut near the ground surface, and stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.

To minimize effects to summer and winter habitat, 3 management zones on the 6.45-acre tract will be utilized (Figure 2-1 depicts zones for Alternative 2). Zone 1 is defined as the conservation area, Zone 2 is defined as the residential area from the shoreline to the rear of the property, and Zone 3 is defined as the 0.5 acre dock access and parking area.

The width these management zones were developed are based upon:

- The existing local zoning restriction regarding the construction of structures.

- The area most frequently used by LEWS during the active and non-active periods.
- The action proposed by Predevelopment LTD.
- The existing roads on the 6.45-acre property

Although areas within the zones may be periodically mowed in accordance with management guidelines specified in Table 2-1, no area within Zone 1 will be converted to turf grass. Other portions of the areas in which trees are cut would not be maintained. The size of Zones 1 and 2 varies in the action alternatives. Any trees exhibiting suitable roosting habitat characteristics for the Federally-listed endangered Indiana bat (*Myotis sodalis*) that need to be removed on the project site will be removed after September 15 and before April 15, outside the summer roosting season. Suitable roost trees include dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities.

Predevelopment LTD will provide access routes for LEWS from the water towards the center of the peninsula along the north property line and in all of Zone 1. These routes will be dominated by vegetation types that now occur on the site. The route along the north property line and will be at least 10 ft in width and run approximately perpendicular to the water's edge.

Only areas within Zones 2 and 3 could be converted to lawns, landscaped areas, or other maintained areas. Use of lawn care/gardening products (e.g., herbicides, pesticides, fertilizers, mulch) would be limited to use in Zone 2 and spot treatment of poison ivy property wide. All such materials would be applied in strict compliance with label directions.

- Spot treatment of poison ivy, or other noxious plants, could be conducted anywhere on the lot. This activity would be minimized to the extent practical. Only herbicides for the removal of poison ivy may be applied in Zone 1. Application will be by the following standards:

    1. Only herbicides that contain either glyphosate or 2,4-dichlorophenoxyacetic acid (2,4-D, esters or salts) as their active ingredient would be used.

    2. Prior to application, search the area within 20 ft of the target plant for the presence of LEWS. Do not apply herbicides if LEWS are present within 20 ft of the treatment site.

    3. Do not apply when weather conditions favor drift or runoff from treated site.

    4. Do not spray this product in a way that it will contact LEWS directly or through drift.

    5. Application will be hand sprayer only. Treat individual plants only. No broadcast spraying.

    6. Do not apply within 20 ft of water bodies.

    7. Do not allow LEWS to touch treated plant until the herbicide has dried on the plant (i.e., 3 to 5 minutes following application).

    8. Do not spray when drift could carry into water.

    9. Follow weed-specific directions.

    10. Apply only between noon and sunset.

    11. Mix as directed on label.

12. Apply only for approved uses and follow all general use directions as specified on label.

13. Do not mix, store, or apply glyphosate-based products or spray solutions in galvanized steel or unlined steel (except stainless steel) containers.

2.3.9 Mowing

Maintenance by mowing would be managed to avoid or minimize to the extent practicable effects to LEWS (Table 2–1). The following requirements apply to each action alternative.

Table 2–1. Limits on the season and area of mowing included in each action alternative.

Location	Vegetation Management Measures	
Zone 1	**Alternative 2**	**Alternative 3**
	3.95 acres	1.95 acres
	Mowing, thinning, reduction of vegetation up to 60% of zone	
	Minimum height of vegetation is 6 inches at all times	
	No mowing when temperatures are below 60º F	
Zone 2	**Alternative 2**	**Alternative 3**
	Temporary clearing of 2.0 acres	Temporary clearing of 4.0 acres
	Permanent clearing of 1.5 acre (Minimum of 0.50 acre returned to natural state)	Permanent clearing of 4.0 acres
	Minimum height of turf grass is 3 inches during June through August	
	Minimum height of turf grass is 4 inches during April, May, September and October	
	No mowing when temperature is below 60º F	
Zone 3	**Alternative 2**	**Alternative 3**
	0.5 acres	0.5 acres
	Minimum height of turf grass is 3 inches during June through August	

	Minimum height of turf grass is 4 inches during April, May, September and October
	No mowing when temperatures are below 60º

2.3.10 Minimization of Actions Within Zones 1 and 2

To avoid and minimize effects to potentially suitable LEWS habitat, Predevelopment LTD proposes only minimal modifications to this area. Specifically:

- The residence, garage, or other outbuildings, driveway, access road, or septic mound will be constructed within Zone 2 and the dock access and parking area will be constructed within Zone 3.
- No excavation or topsoil stripping will occur within Zone 1.
- Modification to existing vegetation and construction of facilities within Zone 1 is limited to the thinning of existing trees and mowing.
- If trees are cut within Zone 1, they will be removed using a chain saw, and will not be cleared by use of heavy equipment/earth moving equipment. Stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.
- Mowing in the management zones will be implemented only as described in Table 2-1. To minimize ground disturbance, and the areas in which landscaping materials would be applied, turf grasses will not be established within Zone 1. Herbicides, pesticides, fertilizer, and any mulch containing materials other than natural wood products will not be applied within Zone 1, with the exception of spot treatment of poison ivy, which may occur property wide.
- A single boardwalk or path no wider than 6 ft and a single platform no larger than 1200 ft^2 may be constructed as described in Section 2.3.5, above.
- Water features e.g., fountains, pools, hot tubs) will be constructed above ground to discourage access by LEWS, with excavation limited to topsoil removal within the construction footprint. Water in these structures will be de-chlorinated prior to draining. Hot tubs will be covered when not in use to prevent access by snakes. Such features will not be constructed within Zone 1.

2.3.11 Dock Construction

Extending from the 6.45-acre property, Predevelopment LTD proposes to construct a steel bridge, a rock-filled steel crib dock and a rock jetty beyond the Lake Erie high water mark within a proposed 33,300 ft^2 submerged lands lease. The proposed dock would extend approximately 200 ft lakeward from the shore bridge, then southerly parallel to the shore approximately 206 ft then shoreward an additional 40 ft. to the 6.45-acre property for use by Long Point residents.

The dock project is a separate independent action from the residential development. Before the dock project activity can begin, Predevelopment LTD is required to obtain authorization under the Clean Water Act by receiving a valid permit from the USACE. All Federal agencies, including the USACE, are required

to consult with the Service under section 7 of the ESA for any Federal action that may affect a Federally-listed species, including the LEWS. Dock construction on any islands in the western basin of Lake Erie is an activity that may affect the LEWS. Compliance with the ESA for the construction of a dock by Predevelopment LTD will be ensured thorough the section 7(a)2 consultation process. The USACE is responsible for compliance with NEPA when issuing permits. Because the proposed dock construction is not interrelated or interdependent upon the residential development, dock construction is not an activity that is considered in this draft EA/HCP.

2.3.12 Management of Pets

Domestic or feral pets, especially cats, can be formidable predators of reptiles. Likewise, certain livestock (e.g., fowl, pigs) can prey upon snakes, while others can adversely modify LEWS habitat by removing vegetation and compacting soil (R. King, pers. comm.). Predevelopment LTD will implement the following to avoid or minimize the potential for interactions between pets and LEWS:

- Domestic cats will remain indoors at all times.
- Livestock (e.g., pigs, goats, horses) are not to be kept on the 6.45-acre tract.
- Dogs must be under control of the owner or owner's designee in accordance with Ohio Revised Code § 955.22.

2.3.13 Research Support and Pre-construction Coordination

Predevelopment LTD will provide access, at a mutually agreeable time, to the 6.45-acre tract to researchers studying the LEWS. By facilitating this research, Predevelopment LTD will aid researchers in characterizing the hibernation/hibernacula and movements of LEWS. Additionally, Predevelopment LTD will notify the USFWS prior to initiating substantial development/construction activities on the 6.45-acre tract. This provision does not grant access to the private residence, garage, or outbuildings.

2.3.14 Reporting of Mortalities and Injuries of LEWS on the 6.45-acre Tract

Predevelopment LTD shall report mortalities of, and injuries to, LEWS on the 6.45-acre tract to the Service within 24 hours of occurrence, or, if the take occurs during a weekend or holiday, by the next business day.

2.3.15 Responsibility of the Property Owners

The 6.45-acre Predevelopment LTD property will include deed restriction requiring that present and future owners comply with HCP/ITP for the duration of the permit (Appendix F). Additionally, Lot owners would advise all visitors/renters/lessees of the LEWS protection measures and restrictions in the HCP/ITP.

2.3.16 Monitoring and Reporting

Monitoring and reporting, as described in the HCP, would be required annually over the duration of the ITP. Annual cost of monitoring is estimated at $1,250. Total cost of monitoring is estimated at $18,750.

2.4 ALTERNATIVE 2 – MINIMAL CLEARING/PROPOSED ACTION. AN HCP HAS BEEN DEVELOPED AS PART OF THIS ALTERNATIVE TO MITIGATE (AVOID, MINIMIZE, AND/OR COMPENSATE) FOR INCIDENTAL TAKE OF THE LEWS THAT MAY OCCUR DURING SITE DEVELOPMENT ACTIVITIES. THIS ALTERNATIVE WOULD ALLOW USE OF THE PROPERTY IN ACCORDANCE WITH THE APPLICANTS' FINANCIAL AND AESTHETIC REQUIREMENTS, WITH A CONSERVATION PLAN THAT WOULD MINIMIZE AND MITIGATE POTENTIAL IMPACTS TO THE LEWS BY PROVIDING SPECIFIC CONSERVATION AND PROTECTION MEASURES.

Alternative 2 would result in the issuance of an ITP with duration of 15 years. Substantial aspects of this alternative are described in Section 2.3, above. Additional features of Alternative 2 follow.

2.4.1 Areas of Vegetative Clearing, Thinning, and Maintenance

Vegetative clearing, thinning, and maintenance would occur as described in Sections 2.3.1, 2.3.8, and 2.3.9 above, with the following additional requirements:

- No more than 2.0 acres (Zone 2 for Alternative 2) would be cleared of forest cover to accommodate temporary construction needs,
- In Zone 2, structures and facilities, including the driveway would be built on, and turf-grass lawns and landscaped areas would be maintained on, no more than 1.5 acres of the initial 2.0 acres cleared, and
- At least 0.5 acres of the initial 2.0 acres cleared in Zone 2 would be allowed to revert to natural conditions.

2.5 ALTERNATIVE 3

2.5.1 Areas of Vegetative Clearing, Thinning, and Maintenance

Vegetative clearing, thinning, and maintenance would occur as described in Sections 2.3.1, 2.3.8, and 2.3.9 above, with the following additional requirements:

- No more than 4.0 acres (Zone 2 for Alternative 3) would be cleared of forest cover to accommodate development needs. In Zone 2, structures and facilities, including the driveway, would be built on, and turf-grass lawn and landscaped areas would be maintained within this 4.0-acre area, and
- None of the 4.0 acres cleared in Zone 2 would be allowed to revert to natural conditions.

2.6 MEASURES TO AVOID AND MINIMIZE TAKE

Measures to avoid or minimize take, or to enhance LEWS habitat on Long Point, vary in the proposed alternatives. These measures are an integral portion of the alternatives (Table 2–2).

Table 2–2. Summary of measures to avoid or minimize take, or to enhance LEWS habitat on the 6.45-acre tract, integral to proposed alternatives.

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3
Management zones will be established on the 6.45-acre property for habitat and development management.	no	yes	yes
Predevelopment LTD will provide access routes for LEWS from the water towards the center of the peninsula. These routes will be dominated by vegetation types that now occur on the site, and will be at least 10 ft wide and run approximately perpendicular to the water's edge.	no	yes	yes
To minimize disturbance to the LEWS and its summer and winter habitat, no turf-grass lawns would be established with Zone 1. Herbicides, pesticides, fertilizer, and any mulch containing materials other than natural wood products will not be applied within Zone 1.	no	yes	yes
Pets would be controlled as specified in Section 2.3.12.	no	yes	yes
Predevelopment LTD will abandon 700 ft of the old shoreline access road from the southerly property line to near the northern end of the stone wall adjacent the dock access and parking.	no	yes	yes
Signs would be posted on the 6.45-acre tract along the access road promoting low vehicular speeds and alerting users of the potential presence of LEWS.	no	yes	yes
Ground-disturbing activities on the 6.45-acre tract would be permitted only between April 16 through October 14 when temperatures are above 60°F in accordance with the Service's Lake Erie Watersnake Guidelines (Appendix B).	No seasonal limits on activities	yes	yes
Fire pits will be limited to one in a permanent location in Zone 2 greater than 69 feet from the shoreline. The fire pit will be a maximum of 10 ft^2 and will not be filled with materials (e.g. brush, leaves, branches, logs) until the time of burning to avoid harming snakes that may seek shelter in piles of debris.	no	yes	yes
To avoid or minimize to the extent practicable effects to LEWS, mowing would implemented only as specified in Section 2.3.9, Table 2-1.	no	yes	yes

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3
Water features (e.g., fountains, pools, hot tubs) will be constructed above ground to discourage access by LEWS, with excavation limited to topsoil removal within the construction footprint. Water in these structures will be de-chlorinated prior to draining. Hot tubs will be covered when not in use to prevent access by snakes. Such features will not be constructed within Zone 1.	no	yes	yes
No trails or boardwalk structures will be constructed in Zone 1. Constructed trails/boardwalks within Zone 2 would be limited to one no wider than 6 ft. The boardwalk could terminate in a platform in Zone 2 no larger than 1200 ft^2 built as a deck or in a rock-crib design.	No limit	yes	yes
Predevelopment LTD would continue to provide access to the 6.45-acre tract to facilitate research conducted by Dr. R.B. King of N. Illinois University at a mutually agreeable access date and time. This provision does not grant access to the private residence, garage, or outbuildings. By facilitating this research, Predevelopment LTD would aid researchers in characterizing the hibernation/hibernacula and movements of LEWS.	no	yes	yes
Predevelopment LTD would notify the Service prior to initiating substantial development/construction activities on the 6.45-acre tract.	no	yes	yes
Access to the 6.45-acre tract by Service or Ohio Division of Wildlife representatives to observe or monitor LEWS would be granted at a mutually agreeable access date and time. This provision does not grant access to the private residence, garage, or outbuildings.	no	yes	yes
Predevelopment LTD shall report mortalities of, and injuries to, LEWS on the 6.45-acre tract to the Service within 24 hours of occurrence, or, if the take occurs during a weekend or holiday, by the end of the next business day.	no	yes	yes
During forest clearing in areas outside Zone 2, trees would be cut near the ground surface, and stumps with a diameter $\geq$ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.	No limits on tree removal	yes	yes

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3
Transfer of ownership of the 6.45-acre property from Predevelopment LTD to other ownership will include a deed restriction requiring that present and future owners comply with HCP/ITP for the duration of the permit (Appendix F).	no	yes	yes
Property owners of the 6.45-acre property would advise all visitors/renters/lessees of the LEWS protection measures and restrictions in the HCP/ITP.	no	yes	yes
Maximum area to be cleared of forest cover for construction of a residence with a deck/patio, garage, and septic mound.	entire lot	2.0 acres	4.0 acres
Maximum cleared area to be within footprint of buildings, driveway, dock parking/access, concrete slab or maintained in turf-grass lawn/landscaped areas	entire lot	2.0 acre	4.5 acres
Material used to construct the driveway.	Any, assume asphalt paving	light-colored gravel	light-colored gravel
Maximum width of driveway to residential area.	No maximum	12 ft	12 ft
Duration of Incidental Take Permit	n/a	15 years	15 years

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 SITE DESCRIPTION

Only the area within the property owned by Predevelopment LTD, Erie County Ohio Recorder "RN200117251" is addressed in this HCP. This 6.45-acre tract is on an area of Kelleys Island known as Long Point, the northeastern-most extension of Kelleys Island, Erie County, Ohio.

To the north is an approximate 15-acre tract known as the Long Point Subdivision. The Subdivision contains seven lots, none of which are currently built upon. Construction of a private residence on each lot is expected by 2013. A private drive, Long Point Lane, has been constructed and underground utilities have been installed.

The remaining Long Point property to the north of the Subdivision is a 12-acre tract (Spirk property) containing three residential structures and other facilities. Portions of the property have been recently cleared. The owner intends to maintain the general character of the site in its current condition, and is not planning to further subdivide the property (pers. Comm., E. Meyers Arter and Hadden, LLP).

The Cleveland Museum of Natural History (Museum) owns several tracts on Long Point, one along the east/south shore and one on the north shore south of the 6.45-acre tract, completely abutting the Predevelopment LTD property on the South and East. There are no reasonably foreseeable development plans for the Museum property.

The Predevelopment LTD parcel is abutted on the West/Northwest by the Lake Erie Shoreline

Electric utility lines and a private common access road (Long Point Lane) run through the Predevelopment LTD property via a combined utility and private access road easement to the Long Point Subdivision and the northeastern tip of the peninsula. Sewer lines, public water, and natural gas utilities are not available on the Predevelopment LTD property.

A survey and legal description of the Predevelopment Parcel was completed (Appendix C).

3.2 VEGETATION

Nearly 100% of the 6.45-acre tract is forested. Typical trees on the property are short (< 40 ft tall), and of small diameter (< 10 inches diameter at breast height). Review of available aerial photography shows the areas to be "vacant wooded land surrounded by same" in photographs from 1950, 1969, 1973, and 1986. The dominant tree species is hackberry (*Celtis occidentalis*). Other less common species include Ohio buckeye (*Aesculus glabra*), eastern red cedar (*Juniperus virginiana*), oak (*Quercus* sp.), black willow (*Salix nigra*), hickory (*Carya* sp.), dogwood (*Cornus* sp.), honey locust (*Gleditsia triacanthos*), and cottonwood (*Populus deltoides*). Cultivated grass (*Poa* sp., *Festuca* sp.) is common in areas of open canopy. A weedy herbaceous understory is nearly ubiquitous.

According to mapping in the Kelleys Island Master Plan, approximately 47% of Kelleys Island is wooded (PKG 2001). Historically much of the island was forested with red cedar. By 1813 the island's timber was being lumbered for firewood to supply steam ships, and was being cleared for agriculture. By the mid 1800s most of the island had been deforested. With the island's economic and population decline during the early 20th century, some parts of the island reforested with hardwood species, as reflected in the island's existing 1243 acres of woodland.

"Island Reserve Lands" comprise 25% of the island. These areas are clustered near the center and on the north side of the island, and are composed largely of State-owned lands maintained in "their natural state with few amenities and improvements" (PKG 2001).

EcoSphere Associates (Charles E. Herdendorf, PhD), investigated the entire 6.45-acre tract for existence of any rare Ohio plant species, particularly the building envelope and the shoreline. The shoreline is an "Alvar Habitat" because of plant adaptations to ice scour and wave attack. A list of plants in the building envelope and along the shoreline has been prepared (Appendix E). No Federal or Ohio listed plant species were found on the property during the survey conducted by EcoSphere Associates.

3.3 WILDLIFE

Although no surveys were completed to identify wildlife species using the 6.45-acre tract, anecdotal information is available regarding species observed on Kelleys Island by the local residents. Sightings include 241 bird species, 45 butterfly species, 26 dragonfly species, 1 amphibian species, 6 mammal species and 6 reptile species (see www.kelleysisland.com).

The forest on Long Point provides habitat for a variety of wildlife. However, there are no known ecologically unique/critical characteristics present on Long Point. Although one of the two largest contiguous forests on the island, the entirety of the northeast corner of Kelleys Island is of insufficient size to support bird species referred to as "forest-interior species" (e.g., scarlet tanager [*Piranga olivacea*], eastern wood-pewee [*Contopus virens*], wood thrush [*Hylocichla mustelina*]). Robbins et al. (1989) found breeding forest interior bird species are less common as forest patch size diminishes from 250 acres. The Illinois Department of Conservation (in Herkert et al. 1993) indicates only 75% to 80% of (breeding) forest

interior species would be present in forest patches as small as 250 acres. Management guidelines (e.g., Maryland Partners in Flight 1997) typically recommend forests of 2500 acres (approximately the size of Kelleys Island) for the successful management of forest interior breeding birds. Others (e.g., Rosenberg et al. 1999) indicate 2500-acre areas with 70% or greater forest cover provide high quality habitat for forest interior birds.

The shape of Long Point and the forest cover there also presents limiting factors for forest interior birds. Sandilands and Hounsell (1994) found breeding forest interior bird species avoided areas closer than approximately 300 ft from the forest edge. The 6.45-acre tract has a maximum depth of approximately 270 ft extending from the Lake Erie High Water Mark along its common border with the Long Point Subdivision to its border on the southeast with the Cleveland Museum of Natural History. A mowed, 30 ft-wide power line corridor approximately parallels the northwestern shore, and is less than 150 ft from the shoreline as it passes through the Predevelopment LTD property. The 6.45-acre tract is nowhere greater than 300 ft wide from waters edge to rear property line, and little if any habitat exists there for breeding forest interior species.

Long Point is reported to support numbers of birds during spring and fall migration. This issue will be the central focus of assessing the impact of the alternative actions on non-listed wildlife.

3.3.1 Migrating Birds

Many birds migrate across Lake Erie, spending summers in Canada and the United States and winters in Mexico, the Caribbean, Central America, and South America. Some species fly non-stop and many others utilize stopover locations (stepping-stone) during migration. Along the approximately 40-mile distance across Lake Erie from Point Pelee to Marblehead, there are a number of sizable islands including Pelee, North Bass, Middle Bass, South Bass, Kelleys, and Catawba, as well as other smaller islands that migrating birds use as stepping-stones. Stepping-stones are used as resting points by birds where they feed and find shelter. In particular circumstances, coastal stepping-stones may be important as many species of birds make nonstop flights over water, some as long as 80 miles.

Migrating birds traveling across the lake use Kelleys Island, as well as the other Lake Erie islands. Migrating birds utilize much of Kelleys Island and do not use Long Point exclusively. Stopover points used by migrating birds are generally not as habitat specific as are the preferences shown by breeding birds. The presence of food, rather than specific habitat characteristics, appears to be important for migrants (pers. comm., B. Peterjohn, USFWS). Evidence also shows that birds flying across Lake Erie reach the shoreline of the island and follow it around to the opposite shoreline, where they resume the flight across the Lake (pers. comm., B. Peterjohn, USFWS). Few birds are believed to routinely fly directly across Kelleys Island (pers. comm., B. Peterjohn, USFWS).

3.3.2 Rare Species

The Habitat Conservation Plan was prepared in anticipation of an incidental take permit for the LEWS. Five species Federally-listed as endangered or threatened and a Federal candidate species are known to occur in Erie County, Ohio:

- Lake Erie Watersnake (*Nerodia sipedon insularum*) - Threatened
- Great Lakes piping plover (*Charadrius melodus)* - Endangered
- Indiana bat (*Myotis sodalis*) - Endangered
- Lakeside daisy (*Hymenoxys herbacea*) - Threatened
- Bald eagle (*Haliaeetus leucocephalus*) - Threatened
- Eastern massasauga rattlesnake (*Sistrurus catenatus*) – Candidate

There is one official record of a Kirtland's warbler sighting on Kelleys Island (pers. comm., J. McCormac, Secretary of Ohio Bird Records Committee). Robert Harlan observed the male Kirtland's warbler on May 14, 1997. Because use of the island by the species is so rare, no take is likely to occur as a result of the development on the 6.45-acre tract, and the species will not be further addressed in this HCP.

Of the Federally-listed and candidate species that occur in the county, only the LEWS and Lakeside daisy are known to occur on Kelleys Island. The Lakeside daisy occurrence is a reintroduced population within the Kelleys Island quarry, approximately 1.5 miles southwest of the 6.45-acre tract.

A search of Ohio's Natural Heritage Database indicates no known occurrences of state-listed species on the 6.45-acre tract other than LEWS.

3.3.2.1 Lake Erie Watersnake

3.3.2.1.1 Background

The Service listed the LEWS on August 30, 1999 as threatened under the Endangered Species Act of 1973, as amended (Federal Register Vol. 64, No. 167, pages 47126-47134). The LEWS inhabits a restricted range less than 25 miles in diameter made up of the islands in western Lake Erie that are more than a mile from the Ohio or Canada mainland (King 1998). Kelleys Island, Erie County, Ohio is within the known range of the LEWS (King 2001a; King 2001b). Shoreline habitat destruction and deliberate persecution by humans were the primary threats leading to the species listing (50 CFR Part 17, Volume 64, No. 64, 30 August 1999). The Service found the designation of critical habitat was not prudent when the species was listed in 1999. To date, no critical habitat has been designated.

King (1986) estimated the total adult population of LEWS at 1262. King (1998) increased the estimate to 1220 to 3223 adults on Ohio islands inclusively. Based upon the several different methods of calculation and data sets generated over multiple years, King (2002) estimates a population of 5473 adult LEWS inhabiting the U.S. and Canadian Islands where LEWS are afforded legal protection (excludes Johnson's Island and Willow Point). The density of Lake Erie Watersnakes across all 30 sites was 185 adults per mile of shoreline.

Additionally, King (2002) reports estimates for 20 of these 30 sites (including approximately 12 miles of shoreline) based upon mark-recapture data at 2949. The density of Lake Erie Watersnakes across all 20 sites was 251 adults per mile of shoreline.

These estimates are based upon data collected over a 20-year period and may not represent the "standing crop" of Lake Erie Watersnakes at any one moment in time. Each of the reports emphasized the preliminary nature of the population estimates. It appears the range-wide LEWS population well exceeds the 1262 estimate made in 1986 (pers. comm., R. King, Northern Illinois University).

3.3.2.1.2 Life History

Throughout most of its range, this aggressive, non-venomous snake is slate gray with no bands or blotches, or is brown with faded or incomplete crossbands and blotches along its entire body length. The average size of an adult female LEWS is 32 inches snout to vent, while the average size of an adult male is approximately 25 inches snout to vent (King 1986). LEWS are born in August and September; the average litter size is 23 young. Concentrations of newborn LEWS occur on the landscape following birth in the fall and following spring emergence from hibernation. Roughly the size of a pencil, these neonates remain inactive and highly vulnerable through the winter hibernation months. The LEWS feeds primarily upon fish and amphibians.

The LEWS is largely restricted to areas near the island shorelines (King 1998). They hibernate in lakeside or upland locations above the waterline and above freezing temperature. The snakes hibernate in and under fallen logs, hollow trees, cisterns, wells, foundations, rock crevices, and debris piles. LEWS hibernate from approximately November through April, and emerge during April and May. During this time, the watersnakes move closer to the shoreline to forage among inland wetlands, if present, especially when Lake Erie water is cool. As water temperatures increase in late May and early June, the snakes move to open, rocky, and sunny areas of the shore and use piled rock drifts as shelters. LEWS also seek summer shelter in underbrush, rock outcrops, and crevices that occur along the water and shoreline bluffs. Manmade structures including crib docks, underground pipes, and rock piles are used extensively by LEWS on Kelleys Island during the non-hibernating period. The snakes are most commonly observed on the south side of the island where residential and commercial development is prevalent (pers. comm., K. Stanford, Northern Illinois University). The south shore of Kelleys Island has the highest recorded density of LEWS at 1809/mi (King 2002). Gulls, herons, raptors, blue racers, and raccoons are thought to be the snake's most frequent natural predators among the western Lake Erie islands.

3.3.2.1.3 Lake Erie Watersnake on U.S. Islands

Locations of hibernacula have been defined through research led by Dr. Richard King of Northern Illinois University (King 2002). King located 50 hibernacula used by 44 separate LEWS. Of the 50, 30 were located directly inland from summer activity areas of the snakes. Hibernacula of the other 20 were "located inland from shoreline areas outside… [areas] used during the summer active season." Snakes apparently moved from 66 ft to 4626 ft along the shore before moving inland. LEWS hibernacula (n = 50) were an average of 112 ft from the shoreline (range = 3 ft to 903 ft). Seventy-five percent hibernated within 295 ft of shoreline; 90% hibernated within 712 ft), 95% hibernated within 1207 ft, and 99% hibernated within 3232 ft. Hibernacula recorded during the study included small (several inches in diameter) entrance holes in the ground surface, and areas beneath/within rock rubble, a foundation and a cellar, concrete steps, boards, a sewer line, a rock wall, tree roots, and other dense vegetation (King 2002).

King (2002) found the snakes (n = 47) used an average of approximately 840 ft (a linear distance measured parallel to the shore) of shallow water area/shoreline (range = 230 to 1181 ft) during the "active season" between July and September. This area of concentrated summertime activity extends approximately 85 ft inland from the shore (King 2002). Four of the 16 snakes monitored in 2000 used crib docks extensively during the active season, and moved inland to hibernate.

Finding from King (2002) appear to indicate that interior hardwood forest is not a critically important habitat attribute; the snakes are frequently observed in mowed and uncut grass and herbaceous vegetation, especially where these habitat types meet other vegetation types (pers. comm., K. Stanford, Northern Illinois University).

3.3.2.1.4 Lake Erie Watersnake on the 6.45-acre Tract

Areas of suitable habitat exist on the 6.45-acre tract, and summer and winter occurrence of the species has been documented on the 6.45-acre tract (King 2002; King 2001a; King 2001b). During warm months, LEWS are found at or near the shoreline of Long Point. The rocky shoreline of Long Point provides shelter, breeding, foraging, and hibernation habitat for LEWS. The snakes forage for small fish and amphibians near these locations and use spaces among rocks and along the shoreline for rest, reproduction, and protection from predators. The shoreline/vegetation interface on Long Point is used during summer and winter (King 2002; King 2001a; King 2001b). King (July 2002) estimated the population of LEWS along 1.7 miles of the Long Point shoreline, including the 6.45-acre tract, at approximately 240 adults, or approximately 140 adults per mile.

On June 8, 2004 King visited the site while conducting the annual LEWS census. The U.S. Fish and Wildlife Service, Ohio EPA, and Dr. Herdendorf of Ecosphere were also on site that day. During the visit, King advised Herdendorf that the LEWS population on the property was low (about 50 snakes per km or equivalent of 25 for the shoreline property). King also advised that the population was much higher along the south shore of Kelleys island (about 1179 snakes per km).

Data indicates that the 6.45-acre tract on the Long Point shoreline has a lower density of Lake Erie Watersnakes than some other areas studied on Kelleys Island such as the south shore. This is interesting because human-related disturbances are extremely low on Long Point and very high on the south shore. It is not known why the density of LEWS in disturbed areas appears to be higher. However, it is reasonable to assume that a variety of factors may be contributing to this phenomenon including the proximity of locations to hibernacula, foraging areas, man-made structures (commonly used for basking), and the level of daily sun exposure. Furthermore, snakes utilizing man-made structures, rather than natural features, tend to be more readily apparent. The watersnake population on Long Point has been very stable for the past two decades, averaging 44 adults/km in the early 1980's and 45 adults/km in the early 2000's whereas the population on the south shore has been highly variable from 450 snakes/km in 1996 to 1179 snakes per km in 2002 (King 2004).

3.3.2.2 Indiana Bat

The Indiana bat (*Myotis sodalis*) is a Federally-listed endangered species that occurs over most of the eastern half of the United States. Large hibernating populations are found in Indiana, Missouri, and Kentucky, and smaller populations have been recorded from Alabama, Arkansas, Connecticut, Florida, Georgia, Illinois, Iowa, Maryland, Massachusetts, Michigan, Mississippi, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, Virginia, and West Virginia. During winter, Indiana bats hibernate in caves and abandoned mines. During periods of activity, Indiana bats typically roost under the exfoliating bark of live or dead trees. Indiana bat maternity and foraging habitat includes small stream corridors with well-developed riparian woods, and upland, largely deciduous, forests. Kelleys Island is within the range of the Indiana Bat.

Surveys have not been completed to assess the presence of the species on Long Point or on Kelleys Island. An onsite habitat assessment by EcoSphere Associates (2004) found little suitable roosting and foraging habitat for Indiana bats on the 6.45-acre tract.

The 6.45-acre tract contains no suitable hibernating sites (caves, mines), and Indiana bats would therefore not utilize the area in winter.

A wide range of upland and riparian areas throughout the Midwest provides suitable summer roosting and foraging habitat. Any trees exhibiting suitable Indiana bat roosting characteristics that need to be removed on the project site will be removed after September 15 and before April 15, outside the summer roosting season. Suitable roost trees include dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities.

3.4 WETLANDS AND OTHER SURFACE WATER FE ATURES

A wetlands delineation conducted by EcoSphere Associates in May and June of 2004 found a number of vernal pools of standing water along the eastern edge of the property east of Long Point Lane extending outward from the Cleveland Museum of Natural History property. These pools occur as a very slight encroachment onto the property in an area that will not be disturbed. With the exception of Lake Erie, there are no streams, rivers, ponds, or other waters of the United States on the site.

3.5 GEOLOGY/SOILS

Fragmented bedrock rests at varying depths on the 6.45-acre tract. Soil depth varies up to approximately 34 inches. The ground surface on Long Point is generally flat, with well to poorly drained soils that are shallow and commonly underlain by limestone rubble (SCS 1971). Castalia (CcA), very channery silt loams (0-2% slopes) that occur on the 6.45-acre tract. Channery, fragments of limestone 3 to 10 inches in diameter occur in the Castalia soil and may make up to 50% or more of the material in the upper soil horizons. The rubble can extend to depths of 42 inches to 15 ft. Below this depth, solid limestone bedrock exists. The degree to which interstitial spaces between the rubble is filled with soil decreases with depth. Soils of the Milton (MnA) silt loam Series, moderately shallow variant (0-2% slopes) are also present on the 6.45 tract. Subsoils are a clay loam that may contain small gravel to larger limestone fragments; solid bedrock typically occurs at depths of 20 to 40 inches.

Soil information above, was confirmed on the North end of the site containing the 0.4 acre building envelope, by test holes dug under the supervision of the Erie County General district on Sept 11, 2002. Soil information was more extensively verified during a Phase I Cultural resources study conducted by EcoSphere (Charles E. Herdendorf, PhD.), on May 27,2004.

The EcoSphere study established a 10-meter (32.8-ft) grid throughout the 0.4-acre building envelope resulting in 23 test holes. The soil from each test hole was examined as to soil type in accordance with the USDA Soil Map for Erie County. The soil was also screened for cultural material and will be discussed in Section 3.11

The northeast portion of Kelleys Island, including Long Point, is surrounded by rocky shoreline extending from the “tree line” outward tens of feet to the water’s edge. The shoreline varies from a sand-like substrate apparently consisting of crushed mussel shells to large, car-sized slabs of limestone and exposed limestone bedrock planes. There are no prime farmlands on Long Point.

3.6 LAND USE

A draft of the Kelleys Island Master Plan was updated in December 2001 (PKG 2001). Concerning the northeast portion of the island, the draft plan noted Long Point is zoned R-1 for low-density residential development and P-R Parks and Recreation. The Plan recommends development principally on 2 to 5 acre lots, and establishment or retention of vegetation to screen views between homes and road rights of way. Semi-private docks are permitted offshore of property zones P-R. The 6.45-acre tract is bordered by Lake Erie to the west, and by private land to the east, north and south. The 7-lot Long Point Subdivision abutting to the north has been accepted and recorded with the Erie County Auditor and residential development is ongoing. A Final Environmental Assessment and Habitat Conservation Plan for the Long Point Subdivision was completed and a Incidental Take Permit issued by the Service in May 2003. The project area is not visible from road rights of way or properties to the south (i.e., from areas on the central part of the island); it is screened from view by 1500 to 1800 ft of wooded private land.

The 6.45-acre tract is currently wooded; it comprises less than one per cent (1%) of the wooded area on Kelleys Island. Approximately one-third of Kelleys Island is in tree cover (PKG 2001). This cover type is represented broadly across the island, with the largest contiguous areas occurring in the northeast (including Long Point), northwest, and east.

There are no local, state, or Federal parklands on Long Point.

All alternatives assessed herein are in accordance with land use plans. No adverse effects to local land use are anticipated from proposed alternatives, and this issue therefore is not a specific focus of this EA.

3.7 AIR QUALITY

Information on quantitative air quality of the project area is unavailable. Casual observation indicates local air quality is good within this non-industrial, rural, residential area. Because this project is unlikely to have measurable effects on local or regional air quality, this issue was not specifically a focus of this EA.

3.8 WATER QUALITY

There are no known sources of groundwater or surface water contamination at the site (EcoSphere 2004 and Lawhon & Associates 1999). No substantial effects to water quality are expected. In all alternatives, ground disturbance would likely take place sporadically over time, and in disjunct locations on the 6.45-acre tract. Because of the limited building envelope on the property (less than 0.4 acre) preparation of a Storm Water Pollution Prevention Plan and compliance with National Pollution Elimination Discharge System rules would not be mandatory. Because the topography of Long Point is flat, and the site lacks streams, creeks, or other water conveyances, it is unlikely that substantial runoff from construction activities would occur. Local zoning codes prohibit construction of structures within 125 ft of the OHW. We anticipate the flat site topography, and vegetation between areas of ground disturbance and the lake will adequately minimize the movement of water and sediment to the lake, therefore detailed analysis of effects to water quality caused by proposed alternatives was not a focus of this EA.

3.9 HAZARDOUS, TOXIC, OR RADIOACTIVE MATERIALS

Based upon a Phase I Cultural resources Study of the Site conducted by EcoSphere Associates, there are no known sources of hazardous, toxic, or radioactive wastes or materials on the property (Ecosphere Associates, Sept,2004) Inspection by Ecosphere revealed “a relatively pristine environment, remarkably free of anthropogenic debris and no evidence of toxic, radiological, or otherwise hazardous materials. This lack of hazardious materials is consistent with dataon historic usage of the property on Long Point.”

3.10 ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Federal Register 7629 (1994), directs Federal agencies to incorporate environmental justice in their decision making processes. Federal agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations.

No environmental justice issues exist for any of the alternatives. The 6.45-acre tract is currently unoccupied and unused for agricultural, industrial, or any other economic activity. As the alternatives propose construction on one residential lot, neither of the alternatives would create substantial levels of pollution. No minority or low-income populations would be displaced or negatively affected in any other way by the proposed action or by any alternative in this EA.

3.11 CULTURAL RESOURCES

The entire landmass of Kelleys Island is listed on the National Register of Historic Places (NRHP). The NRHP includes properties of significance in American historical architecture, archeology, engineering, and culture. In compliance with §106 of the National Historic Preservation Act, Federal agencies must take into account the effects of actions on any property listed on, or eligible for, the NRHP. On behalf of the Service, Predevelopment LTD consulted with the Ohio Historic Preservation Office, researched available

information, and surveyed the project area for the presence of cultural resources. Kelleys Island has a history of prehistoric and historic occupation. Prehistoric peoples were present on the island over the entire temporal range in the Great Lakes region; however occupation does not seem to intensify until the Late Woodland period (ca. 700 AD to 1200 AD). The majority of known intense occupations from this period are along the island's southern shore, facing the mainland. The first recorded settler on Kelleys Island was William Cunningham who resided there from 1808-12, during which time he conducted trade with the Indians. By 1813, the island's timber (predominately red cedar) was being lumbered, but it wasn't until the 1830s when the island's most abundant resource, limestone, was exploited. The Kelley brothers acquired much of the property on the island and sold stone to markets in Detroit, Buffalo, and Cleveland. Supplying firewood for steam ships combined with clearing for agricultural use destroyed the lumber industry on the island by the mid-1800s.

Limestone mining/production had the greatest impact on the cultural landscape of Kelleys Island. Construction of roads, docks, and housing were initially developed in response to this growing industry. Quarries consumed at least 16% of the island's total surface area. Other industries such as agriculture and viticulture also contributed to the cultural landscape. The temperate lake climate and rich lime soils combined to provide ideal growing conditions for corn, wheat, and pork that were exported for market as early as the 1830s. The growing of grapes and the production of wine eclipsed other commercial activities during the mid to late 1800s when almost every family on the island devoted land and/or time to its production. The island's population more than tripled from 1849 to 1863. The unprecedented prosperity and increased population during this period accounts for most of the architectural resources extant on the island today. Towards the end of the 19th century viticulture declined. Commercial and recreational fishing on the island provided an additional and constant source of food and income. A number of fishing ports dating from the late 19th to early 20th centuries were located along the eastern and southern shorelines.

The decline of viticulture and quarrying industries during the early 20th century resulted in serious population and economic decline. Not until the 1960s with the rebirth of quarrying activities and the growth of tourism did economic recovery for the island began. In the last decade, tourism above all other industries has contributed greatly to the island's economy.

The majority of historic activities that have contributed to the cultural landscape of Kelleys Island seemed to have occurred outside of Long Point. Three archaeological sites and at least two historic house foundations have been identified on Long Point:

- Watkin house foundation
- Lincoln house foundation
- Rock wall along Monagan Road
- Prehistoric Site No. 1
- Prehistoric Site No. 2

The Lincoln House foundation and the rock wall along Monagan Road are located on the 6.45-acre parcel. The foundation first appears on the 1874 atlas, and is no longer evident on a map produced in 1919 after the Lincoln House burned down in 1917. The assumption is that the foundation and wall, which extends into the south property line of the Long Point Subdivision for about 1400 ft, is associated with the historical owners that participated in agriculture/viticulture activities. Both the Watkins and Lincoln foundations are contributing elements to the Kelleys Island Historic District. Near the Watkin foundation, a line of rocks placed end to end was identified running approximately 200 ft east-west within Lot 5 of the Long Point Subdivision. In many cases, glacial erratics were used instead of the ubiquitous limestone slabs. The rocks appear to mark a former property line, possibly the line separating the Watkin property from the Lincoln property to the southwest.

A historic rock wall runs along the eastern side of the abandoned shoreline access road on the 6.45-acre parcel beginning near the south property line and extending approximately 720 ft north. Additionally, there are two small sites on Long Point outside the 6.45-acre parcel where prehistoric lithic scatters were found.

Off the shores of Kelleys Island lie 20 or more shipwrecks. The shallow water surrounding the island allows for relative ease of identification and mapping of these wrecks. Two wrecks lie off the west coast of Long Point: the steamship *Adventure*, 33-ER-481 and a scow schooner *W.R. Hanna, 33 ER 488*. A third shipwreck, a side- wheel steamer named *The Saint Louis*, is located 1.5 miles off of the east coast. Plans to develop Ohio's first underwater archaeological preserve have been initiated; however, details are not yet available.

Except for the Lincoln house foundation and historic rock wall, now described as Site 33-ERI-1664 all cultural resources described above occur outside the 6.45-acre parcel.

The steamship *Adventure* sits on sand and rock bottom approximately 100 feet offshore of the 6.45-acre parcel perpendicular to the shore and out from two large boulders located on the Predevelopment shoreline. The square sterned scow *W.R. Hanna* is located only a few yards from the *Adventure* parallel to the shore with only three to five feet clearance above the cargo of stone she carried.

A Phase I cultural resource survey of the 6.45-acre parcel was conducted by EcoSphere Associates. In May and June of 2004, prior to the cultural resource survey, a plan was developed that discussed the survey methods and the cultural context in which the 6.45-acre tract occurs. EcoSphere conducted background research on previously identified cultural resources on and near the 6.45-acre parcel and interviewed individuals associated with the Kelleys Island Historical Society and knowledgeable of the history of Long Point. Additionally, a predictive model was generated that was then used to develop a Phase I survey strategy for the proposed development.

The Phase I fieldwork was conducted during May and June of 2004. The survey included visual inspection and systematic evaluation of material removed from small holes dug with a shovel ("shovel tests") in the project area, and was completed in coordination with the Ohio State Historic Preservation Office. The fieldwork did not result in identification of any previously unrecorded historic resources.

EcoSphere submitted the reports titled "Phase I Cultural Resource Survey for the Predevelopment Parcel on Kelleys Island, Erie County, Ohio" to the Ohio Historic Preservation Office for review on Sept 1, 2004. An Ohio Archaeological Inventory form dated July 2004, for the Joseph Lincoln House (ER-521) was also submitted on August 2, 2004. On December 21, 2004, the Ohio State Historic Preservation Office provided a response in writing stating that no historic properties should be adversely affected by construction of a summer home proposed for the Predevelopment parcel. A copy of the Ohio State Historic Preservation Office's December 2004 clearance letter is included in Appendix A.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ALTERNATIVE 1 - NO ACTION

Under the No Action Alternative, the Service would not issue an ITP, and an HCP would not be prepared or implemented. This alternative does not forbid sale of the land, or on-site construction/development of the property. The property owner would be likely to construct in a manner similar to that evident at numerous other locations on Kelleys Island, where there may be no specified management practices intended to limit effects to LEWS.

If the property owner constructed without an ITP, violations of §9 of the ESA may result and warrant civil and criminal enforcement actions by the Service. If development on the 6.45-acre tract occurred on limited areas, and occurred sporadically over a number of years as has occurred in numerous locations along the shoreline of Kelleys Island, it is reasonable to expect that each individual action may not be sufficient to elicit enforcement action.

4.1.1 Direct and Indirect Effects

4.1.1.1 Vegetation

Alternative 1 would affect vegetative resources on Long Point through clearing of forest and other proposed ground-disturbing activities. Over time, the area of forest removal, forest conversion to maintained turf-grass lawns, roadways and the like, conducted without protections included in the HCP, could be expected to include the entire 6.45- acre tract. Forest cover on the island could be reduced from 46.6% to 46.5%. The abandoned shoreline access road along the western shore within the 6.45-acre tract would be reopened and natural vegetative succession in this area immediately along the shoreline would not occur.

4.1.1.2 Migrating Birds

The permanent alteration of vegetation expected in Alternative 1 would reduce the habitat available for wildlife that now utilizes the forest on Long Point. Loss/conversion of forest habitat would total approximately 6.45 acres.

Species likely to be present on Long Point and temporarily or permanently displaced by the proposed action are common in small wooded areas throughout Kelleys Island (e.g., cottontail rabbit, white-tailed deer). Wildlife on Kelleys Island, including migrating birds, survive there because they exploit habitat present in at least partially developed landscapes.

Alternative 1 would likely involve the construction of a residence that may have large windows. Because migrating birds utilize Long Point, we anticipate some birds may collide with the windows. Some birds would be temporarily stunned and others may be killed by the impact. While the number of birds that may be harmed is uncertain, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

The development of the 6.45-acre tract as described in this alternative is not likely to greatly affect migrating birds utilizing Long Point. Assuming the forest would be thinned considerably and replaced by sparse woodland (i.e., lawns with occasional trees) and areas of maintained landscapes, migrating birds would likely find some habitat suitable for use during migration. Migrating birds successfully traverse highly developed areas during migration throughout the world. While it is unlikely the anticipated forest removal/thinning would substantively affect the viability of populations of those species that use the island, individual migrating birds could be temporarily or permanently displaced. Because migrating birds are known to use much of Kelleys Island, the Service anticipates no measurable direct or indirect effects to migrating bird populations under this or other alternatives presented in this analysis.

4.1.1.3 Lake Erie Watersnake

If current or future owners cleared land and constructed an individual residence or other development on the 6.45-acre tract, the activity may occur sporadically/incrementally over a long period and therefore not elicit focused attention of the Service. Although the specifics of such development are unpredictable, these

activities could result in direct and indirect effects causing take of LEWS substantially higher than that anticipated for any of the action alternatives proposed herein.

LEWS utilizing both summer and winter habitat could be adversely affected by unregulated construction and other development activities. Description of effects based upon numbers of LEWS affected is not possible based upon available information; however we believe effects of the following categories, generally quantified in terms of "area of habitat affected," are possible.

4.1.1.3.1 Summer habitat removal and/or degradation

Without benefit of the management approaches of the HCP, we anticipate a semi private dock and a residence and its accessory needs or similar construction would occur on the lot, and that construction may occur any time of year. Assuming average dock size was 200 ft by 206 ft and that the dock was placed on the shoreline and in shallow water, approximately 41,000 ft^2 of summer habitat, along with any temporary work space would be temporarily lost. As is evident on the south side of Kelleys Island, we anticipate that the dock would be built of wood or metal crib design, and that LEWS would soon begin to utilize the structures.

Direct modification of shoreline habitat would require Federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the proposed actions to avoid take, or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits. For this reason, we believe wholesale unregulated development of the shoreline through construction of seawalls or similar structures is unlikely, and the take caused by such actions is not reasonably foreseeable. However, it is reasonable to expect unquantified and unpermitted minor shoreline modifications including the development of unregulated boat ramps, small floodwalls, piers, and similar structures.

We further expect degradation of those upland areas most commonly used by LEWS during the summer - the area within approximately 82 ft (25 meters) of shore. We anticipate this area of the lot would be converted to turf-grass lawn or other maintained landscape. The habitat quality of these areas would be degraded as natural cover protecting the snakes, and potentially harboring prey species of the snake, would be removed. We anticipated these effects would occur on the lot over a total area of approximately 2.6 acres.

4.1.1.3.2 Winter/transitional habitat removal and/or degradation

Without benefit of the management approaches of the HCP, we anticipate substantial grading and earthmoving activities on the lot largely unconstrained by seasonal limits included in action alternatives. We anticipate that most, if not all, existing hibernacula on the 6.45-acre tract would be lost if Alternative 1 were implemented. We also anticipate that natural ground cover would be removed from the entire 6.45-acre tract. Without seasonal restraints placed on construction as identified in this HCP, we anticipate that construction would occur year round, resulting in the direct mortality of hibernating watersnakes. Removal of areas with natural ground cover could expose LEWS moving from and to winter habitat to increased predation. The risk of predation would be further increased because we anticipate that LEWS would need to travel a greater distance to find suitable winter habitat. Documented predators of Lake Erie Watersnakes include herring gulls (***Larus argentatus***), great blue herons (***Ardea herodias***), robins (***Turdus migratorius***), and blue racers (***Coluber constrictor***) (USFWS 1999).

The historic Lincoln House foundation and the Lincoln house Wall, which provide winter habitat, would be without a protective mechanism. It is reasonable to assume the foundation and wall may be adversely affected or destroyed during development. Severe loss of LEWS winter habitat on the property would result in lower over-winter survival and would probably have a negative impact on the local population utilizing the 6.45-acre tract.

4.1.1.3.3 Harassment and/or predation caused by pets

We anticipate the home may have one or more dogs and/or cats. Additionally, we expect the owners may keep horses or other livestock/pets (e.g., pot-bellied pigs). We assume that in general the pets would not be restrained and would have full access to the 6.45-acre tract. Although it is not possible to quantify the number/frequency of adverse interactions between LEWS and the pets, or the number of those interactions that would cause the death of a LEWS, we anticipate lethal and non-lethal interactions would occur periodically across the entire 6.45-acre tract.

4.1.1.3.4 Mortality caused by lawn mowing

The potential for mortality caused by lawn mowing is proportional to the area of the 6.45-acre tract in maintained lawn, and area in which unmanaged mowing will occur. In the absence of management guidelines adopted in action alternatives of this analysis, mowing may cause the direct mortality of LEWS, or expose them to disturbance as discussed in the following section. Assuming that the entire 6.45-acre parcel would be cleared, graded, developed, or be converted to maintained turf-grass lawn, and that this turf-grass lawn area would be maintained by "unmanaged" mowing, the potential for LEWS mortality caused by lawn mowers is highest for the no action alternative. Available information does not support estimates of the number of LEWS that might be killed.

4.1.1.3.5 Disturbance/disruption of normal behavior

Some concern has been raised regarding the potential adverse effects caused by the presence of humans and the activities in which they partake (e.g., walking along the shoreline, lighting near residences, noise). Although no research directly addresses this issue in regard to the LEWS, anecdotal evidence indicates this may not be an important issue during the summer months. Although disturbance does cause the snakes to retreat or otherwise move away, the common and ongoing presence of LEWS in docks, jetties, breakwaters, and similar structures in developed areas of the island commonly frequented by humans at least anecdotally indicates important life functions of the snakes may not be substantially disrupted by the disturbance.

Likewise, we expect that disturbance will not cause take during the hibernation period. The snakes are secluded in areas protected from disturbance, and human activity/presence on the island and on Long Point during these months is minimal.

We anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation (e.g., herbaceous cover, leaf cover, woody debris that may provide cover for the LEWS) to turf-grass lawn or other maintained area. It is in these areas that human presence is most common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. We believe Alternative 1 may have the greatest potential for disruption of natural behavior because natural vegetative cover will be removed from the entire 6.45-acre tract.

4.1.1.3.6 Vehicular strikes

The potential for vehicular strikes in the action area increases proportionately with the number and speed of vehicles present on the 6.45-acre tract, and the proximity of roads to areas frequented by LEWS. For purposes of this analysis, only one residence is proposed in each action alternative. Assuming the number of vehicles per residence is constant among all alternatives, expected vehicular traffic does not vary among alternatives. However, in the absence of management proposed in Alternatives 2 and 3 regarding posted speed limits and other signs alerting motorists to the potential presence of LEWS, we believe the potential

for vehicular strikes is greatest in Alternative 1. Increased vehicular strikes may occur should unmanaged development include the construction of paved/blacktop roads. Blacktop roads facilitate higher vehicle speeds and the dark color of the roads is more likely to attract snakes during cool periods (relative to gravel roads).

4.1.1.4 Cultural Resources

With haphazard/episodic development of the site likely to occur without involvement of the Service or other Federal agency, requirements of §106 of the National Historic Preservation Act would not apply, and the Lincoln house foundation (33-ER-521) and the Lincoln house wall (ERI-1664-1)would be without a protective mechanism. It is reasonable to assume the foundation would be buried or otherwise adversely affected or destroyed during earthmoving/grading for development.

4.1.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 6.45-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island will proceed in a manner similar to that described in Alternative 1.

4.1.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 1, in combination with island-wide actions anticipated in the Kelleys Island Master Plan, is assessed here. The clearing/conversion of 6.45 acres of forest on Long Point would reduce the total forest area on Kelleys Island from 46.6% to 46.5%. The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development; however no imminent development plans are addressed in the plan.

Kelleys Island draft Master Plan anticipates future development of many existing privately owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 1 (i.e., the sites will be cleared of forest vegetation). In addition, we assume that future island “build-out” will occur as predicted by the plan (Year 2020) and will occur generally according to zoning depicted in the Master Plan. This scenario results in approximately 68% of the island’s existing forest cover being cleared and converted to residential land use. Remaining forests would comprise approximately 15% of the island.

The draft Master Plan describes preservation of over 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.1.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated loss of 6.45 acres of forest on Long Point in the no action alternative would decrease the forest cover on Kelleys Island from 1228 acres to 1222 acres.

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately-owned, wooded properties on the island (PKG 2001). Assuming the "build-out" will occur as anticipated in the plan, roughly 68% of existing woodland across the island would be converted to residential land use. For purposes of this cumulative effect analysis, we assumed future residential development will occur in a manner similar to the development proposed in Alternative 1 (i.e., forests will be entirely cleared from the developed lot). Given these assumptions, by the year 2020 approximately 400 acres of forestland will remain on the island, all within protected areas (e.g., state owned lands).

The number of birds that may be harmed by colliding with residential windows is uncertain, however, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

Some birds fly non-stop and many others utilize stopover locations (steppingstones) during migration. Along the approximately 40-mile distance across Lake Erie from Point Pelee to Marblehead, there are a number of sizable islands including Pelee, North Bass, Middle Bass, South Bass, Kelleys, and Catawba, as well as other smaller islands that migrating birds use as steppingstones, or resting points by birds where they feed and find shelter. Migrating birds traveling across the Lake use wooded areas of Kelleys Island, as well as the other Lake Erie islands. Resting points used by migrating birds are not believed to be habitat-specific, as compared to nesting habitat. Stopover points used by migrating birds are generally not as habitat specific as are the preferences shown by breeding birds. Migrants focus on food rather than habitat (pers. comm., B. Peterjohn, USFWS). We expect a 68% reduction in forest cover will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely the anticipated 68% reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the Lake Erie shoreline (pers. comm., B. Peterjohn, USFWS).

4.1.2.3 Lake Erie Watersnake

The LEWS population on Kelleys Island declined dramatically through the 1800's as a result of European settlement of the Island, habitat modifications, and direct attempts to exterminate snakes. Their decline continued into recent times with further habitat modifications and tourism of the island. However, population estimates generated during studies conducted during the early 1980's and in 1996-1997 suggest the recent number of Lake Erie Watersnakes has remained relatively stable on Kelleys Island (King 1998). Past activities on Long Point and on Kelleys Island are thought to have reduced the population, and resulted in the population present on the site today.

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has roughly 66,800 ft of shoreline, 27,800 ft of which are undeveloped (PKG 2001).

The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property. If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 1, the development near the shoreline would consist of clearing and conversion to turf-grass lawn and/or maintained landscapes, and the development of docks, piers, and similar structures. Therefore, between 2002 and 2020 when build out is anticipated, undeveloped shoreline will be reduced from 27,800 ft to approximately 10,000 ft (15% of the island's total shoreline).

Without seasonal restraints being placed on construction as in Alternatives 2 and 3 it is anticipated that ground disturbing activities would occur year round and without regards for the LEWS, resulting in the direct mortality of hibernating watersnakes and the reduction of suitable over-wintering sites. Without

island-wide implementation of conservation measures identified in Alternatives 2 and 3, many existing hibernacula would be lost or buried. Additionally, it is anticipated that many clearing and construction activities, including mowing, would occur without the implementation of LEWS conservation measures resulting in the removal/loss of natural ground cover. The habitat quality would be degraded as natural cover protecting the snakes, and potentially harboring prey species of the snake, would be removed. Removal of areas with natural ground cover could expose LEWS moving from and to winter habitat to increased predation. Therefore, it is reasonable to assume that the LEWS population would decrease island-wide if development occurred in this manner resulting from construction during hibernation, lost hibernacula, and increased predation during migration. The anticipated cumulative loss of safe hibernacula from unrestricted and unmitigated development would probably be the primary cause of a long-term reduction in the LEWS population.

If regulatory conditions similar to that expected in Alternative 1 prevail during future development of the shoreline, HCPs would not be prepared, nor Incidental Take Permits issued for these activities. Haphazard development of the remaining undeveloped shoreline on Kelleys Island would occur, and it is unlikely measures to protect LEWS would be implemented. Although we anticipate the development would include some enhancements of summer habitat with the construction of numerous rock crib piers, docks, and similar structures commonly utilized by LEWS during the summer period, we also anticipate that destruction of LEWS winter habitat would cause the LEWS population to decrease island-wide.

4.1.2.4 Cultural Resources

With development of the island likely to occur without involvement of the Service (and in the vast majority of cases without other Federal agency involvement), requirements of §106 of the National Historic Preservation Act would not apply. The Service would not have a means to promote the preservation of cultural resources, and it is reasonable to assume certain cultural resources would be adversely affected. Information is not available at this time to quantify the effects, but it is reasonable to expect the effects would be more severe than would be experienced if the Service and State Historic Preservation Office were consulted during the development.

4.2 ALTERNATIVE 2 - MINIMAL CLEARING WITH 15-YEAR ITP/PROPOSED ACTION

4.2.1 DIRECT AND INDIRECT EFFECTS

4.2.1.1 Vegetation

Alternative 2 would affect vegetative resources on Long Point through clearing of forest and other proposed ground-disturbing activities. Effects are expected to be markedly less than those anticipated in Alternative 1. More specifically:

- The closure of the approximately 700 feet of the newly abandoned west shoreline access road to public use and vehicular traffic would provide an area approximately equivalent in size to the new access road in which natural vegetative would be restored on the 6.45-acre tract Use of the remaining portion of the old drive for use by the owners and dock users for private access only would preclude the need for an additional access drive to the residence and dock in accordance with the concept plan and also allow additional protection of the Lincoln House foundation via the relocation of the existing access point from Long Point Lane to the old access road approximately 380 ft north of the existing. The foundation and wall would be further protected by the construction of a split rail fence prohibiting entry at the old access point.

- The construction of a residence, with a deck/patio, garage, septic mound, and driveway, would require the initial clearing of approximately 2.0 acres in Zone 2.

- Approximately 1.5 acres of natural vegetation in Zone 2 would be permanently removed (i.e., would be beneath structures, driveway, road, or maintained as a turf-grass lawn). To avoid effects to any LEWS hibernacula outside this 1.5-acre area, trees in Zone 1 and any remainder of Zone 2 would be cut near the ground surface, and stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps will not be removed but may be trimmed to ground level.

- Construction and placement of utilities, including sewage treatment facilities, would result in no additional disturbance of vegetation on the 6.45-acre tract. Any ground disturbance required for construction or installation of utilities would occur on acreage cleared for construction (as discussed above).

- Construction of a single boardwalk, trail, or walkway within Zone 2 would result in minimal disturbance to the vegetation. Because this structure would be constructed off ground or directly on the existing surface it would require minimal if any excavation (e.g., boardwalk posts would be set into small excavated holes), and minimal impact to vegetation is expected.

- In total, proposed ground-disturbing activities in Zone 2 would initially remove 2.0 acres of forest cover. Following re-growth within temporary construction areas, forest reduction will total 1.5 acres and will reduce the forest cover on Kelleys Island from 46.6% to 46.58.

- Thinning/clearing of up to 60% of trees in Zone 1 may occur but natural vegetation (native grasses and forbs) must be maintained throughout this zone.

- Up to 0.5 acres will be cleared (Zone 3) for dock access and parking purposes.

4.2.1.2 Migrating Birds

The effects of Alternative 2 on migrating birds are similar to effects discussed for Alternative 1 and that discussion is incorporated here by reference. Initial tree removal/thinning would be conducted on approximately 2.0 acres. Species utilizing forest habitat on Long Point would experience similar effects to those discussed for Alternative 1, but the reduction in habitat conversion would likely be reflected in a reduction in the number of animals permanently or temporarily displaced relative to Alternative 1.

Alternative 2 involves the construction of a residence that may have large picture windows. Because migrating birds utilize Long Point, we anticipate some birds may collide with the windows. Some birds would be temporarily stunned and others may be killed by the impact. While the number of birds that may be harmed is uncertain, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

4.2.1.3 Lake Erie Watersnake

Implementation of Alternative 2 includes substantive measures to avoid, minimize, and mitigate for effects to the LEWS. There is potential for effects to Lake Erie Watersnakes utilizing both summer and winter habitat caused by the actions proposed in Alternative 2. The description of the number of snakes affected and/or affected habitat type is based upon the best available information.

4.2.1.3.1 Summer habitat removal and/or degradation

The construction of a semi-private dock in the water is an activity being planned separate from Alternative 2 and is not an activity that is dependent upon the development of a seasonal residence on the 6.45-acre property. Clearing for construction and operation of this dock will involve approximately 0.5 acres of the 6.45-acre tract. This 0.5-acre area has been described as Zone 3 for practical purposes of this analysis. Direct modification of shoreline habitat (any construction below OHW mark) would require Federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the actions or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits.

The separate construction of a boardwalk and a rock crib platform are features associated with Alternative 2 and the constructed of a seasonal residence. A single boardwalk and platform may be constructed within Zone 2. These structures would be built in a manner (deck-style, or rock crib construction), and schedule (according to established seasonal constraints) that is unlikely to directly harm any LEWS.

The portions of the boardwalk and platform that are built similarly to a traditional deck (i.e., posts, joists, deck boards) would disturb areas only for installation of posts. No harm is anticipated from this construction. The structures may in fact enhance habitat suitability in that LEWS frequently can be found near these structures (pers. comm., A. Zimmerman, USFWS).

Construction of a rock crib platform or deck would likely temporarily displace watersnakes during construction, however we do not anticipate the construction will directly injure any snakes. The platform would replace up to 1200 ft^2 of existing habitat , however these structures are "beneficial to watersnakes because…[they] provide summer habitat and winter shelter for snakes" (USFWS 2003). Rock crib platforms would not be constructed in the water.

No turf grass lawns will be established within Zone 1, and the existing natural herbaceous vegetation will provide cover for LEWS in this area. The removal of up to 60% of trees within Zone 1 is unlikely to directly injure watersnakes as the tree thinning will be done by hand, and the watersnakes will have ample opportunity to move away from the temporary disturbance. The tree stumps left in place in the shoreline buffer area will rot and may provide hibernacula for the watersnakes.

Mowing on the 6.45-acre tract will occur only as described in Table 2–1, and therefore the anticipated effects to the LEWS are minimized to the extent practicable. We anticipate the occasional, though unquantifiable, mortalities will result from mowing according to the guidelines previously presented.

4.2.1.3.2 Winter/transitional habitat removal and/or degradation

Alternative 2 proposes the initial clearing of 2.0 acres (Zone 2). Following construction, at least 0.5 acres of the initial 2.0 acres cleared would be maintained by mowing or otherwise be within the footprint of structures, the driveway, or other proposed facilities.

Conservation measures included in Alternative 2 avoid or minimize to the extent practicable the potential for adverse effects to the LEWS. These measures include, but are not limited to:

- area limits on ground disturbing activities
- seasonal limits on ground disturbing activities as described in the Lake Erie Watersnake Guidelines (USFWS 2003) and Table 2-1,
- protection of the Lincoln House rock foundation (33-ER-521) providing winter habitat
- protection of the Lincoln house Stone Wall (ERI-1664-1).

Ground disturbance will not occur within Zone 1 other than for the repair and maintenance of the used portion of the Old access road and the portion of Long Point Lane (pvt.) on the parcel. This will avoid the physical disturbance of the area near the shore where King (2002) found over 50% of hibernacula. Winter and transition habitat may be converted to areas generally inaccessible to or unsuitable for the snakes (e.g., under structures or concrete slabs). Hibernacula where the house and associated amenities will be built may be destroyed during construction or become inaccessible.

It is estimated that up to 4 hibernacula may be potentially lost due to the proposed development. This calculation is based on research by King (2002) that found approximately 50% of Lake Erie Watersnakes hibernating greater than 34 meters (112 ft) from the shoreline. Approximately 2.5 acres of potential winter habitat will be lost within the area >34 meters from the shoreline. King (2004 pers. comm.) estimated the summer population of Lake Erie Watersnakes on the 6.45-acre property at 25 adults. If it is assumed that 50% (12.5) of these watersnakes will hibernate inland more than 34 meters, approximately 1/3 (4 watersnakes) would hibernate in the building envelope.

The actual number of hibernation sites that would be lost may actually be fewer than 4 based on the following: 1) Alternative 2 includes the preservation of the best potential hibernation structures known to occur on the property. These structures are the Lincoln House abandoned stone foundation, cistern, and stone wall in Zone 1. Lake Erie Watersnakes are known to utilize the Lincoln House foundation for hibernation. 2) the building envelope does not currently contain any structures, such as large trees, downed trees, rock piles, concrete slabs, that indicate the presence of hibernation sites. It is possible that some sites occur here but have been undetected. For the purposes of this analysis, it is assumed that up to 4 sites could occur in the area to be developed. Thus, up to 4 hibernation sites could be permanently lost.

Artificial hibernation structures are not proposed as mitigation for the potential loss of hibernation sites for the following reasons: 1) The locations on the property that appear most suitable for hibernation are being preserved, 2) The suitability and success of artificial hibernation structures for the Lake Erie Watersnake is unknown at this time, and 3) The construction of any additional artificial structures on the property would result in additional modifications to the current habitat conditions which is undesirable.

Additional measures to avoid and/or minimize impacts to winter and transitional habitat will also be carried out. Alternative 2 maintains corridors of undisturbed vegetation along the north property line and in all of Zone 1. These areas may serve as travel lanes as snakes move between winter and summer habitat. Also, ground disturbing activities proposed in Alternative 2 will occur only within the schedule and temperatures identified in the Lake Erie Watersnake Guidelines (USFWS 2003). These activities are therefore unlikely to directly injure watersnakes.

4.2.1.3.3 Harassment and/or predation caused by pets

We anticipate that each of the property owners may have one or more dogs and/or cats. Interactions between LEWS and domestic cats will not occur as all cats would remain indoors. Potential interactions between LEWS and livestock will be avoided because these animals will not be kept on the lot. The potential for interactions between dogs and watersnakes has been avoided or minimized to the extent practicable by the requirement that dogs be in the control of owners or their designee.

4.2.1.3.4 Mortality caused by lawn mowing

The potential for mortality caused by lawn mowing is proportional to the area of the 6.45-acre tract in maintained turf-grass lawn. Approximately 1.5 acres will be maintained in turf-grass lawn in Zone 2 and up to 0.5 acres of Zone 3 for a maximum of 2 acres of turf-grass lawn (the actual acreage of turf-grass

lawns will be less than this total as some of this area will be used for the construction of a residence, garage, dock parking, and other facilities described herein).

LEWS are typically found within 69 feet of the shoreline in the summer and hibernating throughout the 6.45-acre property during the winter. LEWS may be encountered throughout the property during spring and fall as they migrate between summer and winter habitat. Under Alternatives 2, mowing of turf-grass may only occur when temperatures are ≥ 60°F, a temperature at which snakes can move rapidly and should be able to avoid mowers. Additionally, mowing in Zone 1 may only occur on 60 % of the area and vegetation must be maintained at a height ≥ 6 inches to maintain adequate cover for protection from predation. Approximately 2 acres of the 6.45-acre tract will be maintained in turf-grass and less cover for protection from predation will be available. The turf grass provided for in Alternative 2 will be maintained at a height of 3 inches or greater from June through August when LEWS may be present in this area. Turf grass will be maintained at a height of 4 inches or greater during April, May, September, and October, mowing during these months will only occur when temperatures are ≥ 60°F. We believe the potential for lethal take of watersnakes will be reduced by the height and temperature restrictions on mowing in Alternative 2.

4.2.1.3.5 Disturbance/disruption of normal behavior

Effects of disturbance/disruption are as described in Alternative 1. However, as discussed in that portion of the analysis, we anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation that may provide cover for the LEWS (e.g., herbaceous cover, leaf cover, woody debris) to turf-grass lawn or other maintained area. It is in these areas that human presence is most common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. The potential for disturbance has been reduced in Alternative 2 relative to Alternative 1 because natural vegetative cover will be removed permanently only from 1.5 acres (as compared to 6.45 acres in Alternative 1). Additionally, Alternative 2 includes the retention of natural vegetation along property lines to provide travel corridors for the LEWS.

Development of the tract will be primarily for use during the summer. Disturbance/disruption of LEWS by human activities during the summer has been reduced due to timing, temperature, and vegetative maintenance restrictions designed to avoid or minimize adverse affects to LEWS.

Human activity on the 6.45-acre tract is expected to be very minimal during the winter when LEWS are hibernating. Therefore, disturbance/disruption to LEWS during this period should be avoided. Furthermore, we believe that the applicants are knowledgeable and sensitive to the needs of the LEWS and that disturbance is unlikely to occur as a result.

4.2.1.3.6 Vehicular strikes

The potential for vehicular strikes in the action area increases proportionately with the number and speed of vehicles present on the 6.45-acre tract, and the proximity of roads to areas frequented by LEWS. No means exist to accurately estimate the number of watersnakes that may be struck. For purposes of this analysis we assumed the number of vehicles per residence is constant among all alternatives since only one residence is to be constructed. The volume of vehicular traffic therefore does not vary among alternatives.

Alternative 2 includes light colored-gravel, as opposed to a blacktop/paved driveway. Additionally, Alternative 2 includes the posting of signs encouraging slow speeds and alerting drivers to the presence of the LEWS. We believe the potential for vehicular strikes is minimized in Alternative 2, because:

- Light colored gravel will reduce the likelihood LEWS will bask on the driveway and/or roads.
- Signs alerting drivers to the presence of LEWS and the need for slow speeds will reduce the incidence of vehicular strikes.
- The closure and abandonment of approximately 700 feet of the shoreline access road along the west shore and the newly constructed access road will reduce the potential for strikes in this area adjacent to the shore and prevent further destruction of shoreline habitat.

4.2.1.4 Cultural Resources

The project would alter the existing setting of Long Point, but it should have limited effects to the cultural setting. Long Point has been allowed to revert back to a wooded condition, a condition that predates most of Kelleys Island recorded history. This wooded condition would continue south and east of the project area within the Cleveland Museum of Natural History property. Two historic structures are present on the 6.45-acre tract, and Archaeological Site 33-ER-522 is documented as a concentration of lithic debris that requires no further archaeological field work and does not contribute materially to the archaeological record.

The Lincoln house foundation and stone wall are located on the property however; they will be protected from construction activities by the Pre Development Ltd or their heirs or assigns. . Ecosphere Associates completed a Phase One cultural resources investigation of the 6.45-acre tract, and presented the document to the Ohio Historic Preservation Office with the conclusion, "that the proposed Predevelopment project will not adversely effect any property that is listed or eligible for listing on the National Register of Historic Places. The Ohio State Historic Preservation Office provided concurrence with this determination in a December 2004 letter to Ecosphere.

The limestone wall (ERI-1664) will not have to be breached to allow use of the northerly portion of the old shore line road access road.

4.2.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 6.45-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island would proceed in a manner similar to that described in Alternative 2.

4.2.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 2, in combination with island-wide actions anticipated in the Kelleys Island Master Plan is assessed here. In the absence of any other development on the island, the clearing/conversion of 2.0 acres of forest (leaving 4.451 acres of forest in Zones 1 and 2 on the 6.45-acre tract. the forest on the island would be reduced from 46.6% to 46.58%.

The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development; however no imminent development plans are addressed in the plan. The Plan

anticipates future development of many existing privately-owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 2 (i.e., approximately 50% of each wooded lot to be cleared, and 38% of each lot would be maintained in open areas or substantially thinned forest). In addition, we assume that future island "build-out" will occur by 2020 as predicted by the plan. This scenario results in the initial clearing/thinning of approximately 422 acres (34% of the existing forest cover), with 316 acres (25% of existing forest cover) being maintained in this more open state. Island-wide forest cover would be reduced from 46.8% to 34.9%.

The draft Master Plan describes preservation of approximately 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.2.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated permanent loss of 1.5 acres (temporary loss of 2.0 acres) in Zone 2 and the potential 60% clearing of trees in Zone1 on the 6.45-acre tract in Alternative 2 would decrease the forest cover on Kelleys Island from 1237 acres (46.6% of the island land area) to 1235 acres (46.58%).

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately-owned, wooded properties on the island (PKG 2001). As described in the analysis of cumulative effects to vegetation associated with Alternative 2, approximately 34% of existing woodland across the island would be cleared or substantially thinned initially, and 25% of existing woodland would remain cleared.

Using the same logic described in the analysis of cumulative effects associated with Alternative 1, we expect a 34% initial reduction, and 25% permanent reduction in forest cover will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely that the 25% permanent reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the Lake Erie shoreline (pers. comm., B. Peterjohn, USFWS).

4.2.2.3 Lake Erie Watersnake

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has approximately 66,800 ft of shoreline, 27,800 ft of which are undeveloped (PKG 2001). The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property.

If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 2, the development near the shoreline would consist of very low impact construction (e.g., development of a single boardwalk/ platformand/or habitat enhancement features like rock crib platforms. Existing vegetation would be left largely intact, modified by hand removal/thinning of trees, and mowing according to standards designed to avoid effects to watersnakes. The mowing restrictions are designed to reduce the likelihood that LEWS will be encountered while mowing and to maintain adequate cover for snakes. The potential for interactions between dogs and LEWS has been avoided or minimized by the requirement that dogs be in the control of owners or their designee. Therefore, between 2002 and 2020 when build out is anticipated, the only shoreline development that would occur island-wide would be as proposed in Alternative 2. Shoreline habitat quality would not be measurably reduced from the baseline condition island-wide.

We anticipate that adverse impacts to winter habitat under Alternatives 2 would be minimal. Disturbance/destruction of hibernacula would be avoided and minimized by placement, seasonal, and temperature restrictions on activities. Under Alternative 2, all known hibernacula, potential hibernacula structures, and approximately 60% of the total property will remain as suitable winter habitat. If other future development on the Island followed this pattern of avoidance and minimization, the current level of winter habitat should be maintained and the LEWS population should remain stable.

We anticipate that if LEWS conservation measures similar to those in Alternative 2 were carried out island-wide, adverse affects to the LEWS and its summer, winter, and transitional habitat would be avoided, minimized, and/or offset. We anticipate that, utilizing Alternative 2, the LEWS population would remain relatively stable on Kelleys Island even if development occurs as projected in the Kelleys Island Master Plan (2001).

4.2.2.4 Cultural Resources

For this analysis, we assumed future development of the island would proceed with occasional involvement of the USFWS in the form of habitat conservation planning. Those private landowners, especially those with shoreline property, with proposed development likely to affect the LEWS would engage in the HCP process with the USFWS. Other landowners proposing actions unlikely to affect the species would not.

On those lots where a Federal nexus existed through the HCP process (or through any other process), the USFWS or other lead Federal agency would be bound by requirements of §106 of the National Historic Preservation Act (NHPA) and coordination with the State Historic Preservation Office would ensue. We anticipate this process would enhance the protection and appropriate management of valuable cultural resources. Information is not available at this time to quantify the effects, but it is reasonable to expect cultural resources unprotected by the Act would suffer greater impact.

4.3 ALTERNATIVE 3 - Maximum Development

4.3.1 Direct and Indirect Effects

4.3.1.1 Vegetation

Alternative 3 would affect vegetative resources on Long Point through clearing of forest and other proposed ground-disturbing activities. Effects are expected to be markedly more than those anticipated in Alternative 2. More specifically:

- The closure of the approximately 700 feet of the newly abandoned west shoreline access road to public use and vehicular traffic would provide an area approximately equivalent in size to the new access road in which natural vegetation could return. Use of the remaining portion of the old drive for use by the owners and dock users for private access only would preclude the need for an additional access drive to the residence and dock in accordance with the concept plan and also allow additional protection of the Lincoln House foundation via the relocation of the existing access point from Long Point Lane to the old access road approximately 380 ft north of the existing. The foundation and wall would be further protected by the construction of a split rail fence prohibiting entry at the old access point.

- The construction of a residence, with a deck/patio, garage, septic mound, and driveway, would require the initial clearing of four acres at the northerly end of the 6.45 acre tract.

- Approximately 4 acres of natural vegetation (Zone 2 for Alternative 3) would be permanently removed (i.e., would be beneath structures or maintained as a turf-grass lawn). Some restrictions would be on vegetation management but effects to any LEWS hibernacula could more than in Alternative 2. Trees could be removed from the 4-acres and stumps could be removed without the restrictions found in Alternative 2.

- The construction and placement of utilities, including sewage treatment facilities, would result in no additional disturbance of vegetation on the 6.45-acre tract. Any ground disturbance required for construction or installation of utilities would occur on acreage cleared for construction or converted to turf-grass (as discussed above).

- Construction of a boardwalk, trail, or walkway would occur on areas already cleared for construction or conversion to turf-grass.

- In total, proposed ground-disturbing activities would initially remove or thin 4 acres of forest cover. Forest reduction will total 4 acres and will reduce the forest cover on Kelleys Island from 46.6% to 46.53%.

- Thinning/clearing of trees verses removal may occur on portions of the 6.45 acre tract but 4 acres of natural vegetation (natives grasses and forbs) would be replace with turf-grass, structures, septic field, etc.

4.3.1.2 Migrating Birds

The effects of Alternative 3 on migrating birds are similar to effects discussed for Alternative 1 and that discussion is incorporated here by reference. Initial tree removal/thinning would be conducted on approximately 4 acres.. Species utilizing forest habitat on Long Point would experience similar effects to those discussed for Alternative 1, but the reduction in habitat conversion would likely be reflected in a reduction in the number of animals permanently or temporarily displaced relative to Alternative 1.

Alternative 3 involves the construction of a residence that may have large picture windows. Because migrating birds utilize Long Point, we anticipate some birds may collide with the windows. Some birds would be temporarily stunned and others may be killed by the impact. While the number of birds that may be harmed is uncertain, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

4.3.1.3 Lake Erie Watersnake

Implementation of Alternative 3 reduces the substantive measures to avoid, minimize, and mitigate for effects to the LEWS found in Alternative 2 and the potential effects to Lake Erie Watersnakes utilizing both summer and winter habitat caused by the actions proposed in Alternative 3 are substantially greater. Description of the number of snakes affected is not possible based upon the best available information; however we believe effects of the following types, generally quantified in terms of "area of habitat affected" are possible.

4.3.1.3.1 Summer habitat removal and/or degradation

The construction of a semi-private dock in the water is an activity being planned separate from Alternative 3 and is not an activity that is dependent upon the development of a seasonal residence on the 6.45-acre property. Clearing for construction and operation of this dock will involve approximately 0.5 acres of the

6.45-acre tract. This 0.5-acre area has been described as Zone 3 for practical purposes of this analysis. Direct modification of shoreline habitat (any construction below OHW mark) would require Federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the actions or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits.

The separate construction of a boardwalk and a rock crib platform are features associated with Alternative 3 and the constructed of a seasonal residence. A single boardwalk and platform may be constructed within Zone 2. These structures would be built in a manner (deck-style, or rock crib construction), and schedule (according to established seasonal constraints) that is unlikely to directly harm any LEWS.

The portions of the boardwalk and platform that are built similarly to a traditional deck (i.e., posts, joists, deck boards) would disturb areas only for installation of posts. No harm is anticipated from this construction. The structures may in fact enhance habitat suitability in that LEWS frequently can be found near these structures (pers. comm., A. Zimmerman, USFWS).

Construction of a rock crib platform or deck would likely temporarily displace watersnakes during construction, however we do not anticipate the construction will directly injure any snakes. The platform would replace up to 1200 ft^2 of existing habitat, however these structures are "beneficial to watersnakes because [they] provide summer habitat and winter shelter for snakes" (USFWS 2003). Rock crib platforms would not be constructed in the water.

Direct modification of shoreline habitat (any construction below OHW mark) would require Federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the actions or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits.

Turf grass lawns will be established throughout the 4-acres cleared (approximating that area used most frequently by the LEWS during the active summer period), and the existing natural herbaceous vegetation will no longer provide cover for LEWS in this area. The removal of up to 60% of trees within Zone may directly injure watersnakes as the tree thinning may be done by machinery or bulldozer, and the watersnakes may not have ample opportunity to move away from the disturbance. Tree stumps would possibly not be left in place in the shoreline buffer area to provide potential hibernacula for the watersnakes.

Mowing on the 6.45-acre tract will occur with height, seasonal and temperature restrictions. The anticipated effects to the LEWS could be more substantial than in Alternative 2. Mortalities due to mowing activities will likely be greater due to the larger area converted to turf-grass verses natural vegetation.

4.3.1.3.2 Winter/transitional habitat removal and /or degradation

Winter/transitional habitat removal and/or degradation would also be greater under Alternative 3.

Alternative 3 proposes the initial clearing of 4 acres of the northerly portion of the 6.45-acre tract. Following construction, the entire 4 acres would be maintained by mowing or otherwise be within the footprint of structures or other proposed facilities.

Conservation measures included in Alternative 2 to avoid or minimize to the extent practicable the potential for adverse effects to the LEWS would be less under Alternative 3. Seasonal limits on ground disturbing activities as described in the Lake Erie Watersnake Guidelines (USFWS 2003) would be included in Alternative 3.

Measures to protect the

Lincoln House rock foundation (33-ER-521) providing winter habitat and protection of the Lincoln house Stone Wall (ERI-1664-1) are included in Alternative 3.

Ground disturbance may occur throughout the 6.45-acre tract and will include the repair and maintenance of the used portion of the Old access road and the portion of Long Point Lane (pvt.) on the parcel, as well as clearance of 4 acres of trees and natural vegetation for conversion to turf-grass that may disturb areas near the shore where King (2002) found over 50% of hibernacula. Winter and transition habitat may be converted to areas generally inaccessible to or unsuitable for the snakes (e.g., under structures or concrete slabs), and turf-grass lawn, seasonal residence, garages, driveway, and the like positioned within 125 ft from the OHW would reduce hibernacula. The 12-foot width of driveway as minimized in this alternative and Alternative 2 would not be a considerable factor since bordering areas would be converted to turf-grass rather than natural vegetation. Hibernacula where the residential structures will be built may be destroyed during construction or become inaccessible. The number of hibernacula potentially affected would be at least double that of Alternative 2.

Alternative 3 includes the preservation of the Lincoln House abandoned stone foundation and stonewall, in Zone 1 to retain suitable LEWS winter habitat.

Additional measures to avoid and/or minimize impacts to winter and transitional habitat will also be carried out. Alternative 2 maintains corridors of undisturbed vegetation along the north property line and in all of Zone 1. These areas may serve as travel lanes as snakes move between winter and summer habitat. Also, ground disturbing activities proposed in Alternative 2 will occur only within the schedule and temperatures identified in the Lake Erie Watersnake Guidelines (USFWS 2003). These activities are therefore unlikely to directly injure watersnakes.

4.3.1.3.3 Harassment and/or predation caused by pets

We anticipate owners of the property may have one or more dogs and/or cats. Interactions between LEWS and domestic cats will not occur as all cats would remain indoors. Potential interactions between LEWS and livestock will be avoided because these animals will not be kept on the lot. The potential for interactions between dogs and watersnakes has been avoided or minimized to the extent practicable by the requirement that dogs be in the control of owners or their designee.

4.3.1.3.4 Mortality caused by lawn mowing

The potential for mortality caused by lawn mowing is proportional to the area of the 6.45-acre tract in maintained turf-grass lawn. Approximately 4 acres will be maintained in turf-grass lawn in Zone 2 and up to 0.5 acres of Zone 3 for a maximum of 4.5 acres of turf-grass lawn (the actual acreage of turf-grass lawns will be less than this total as some of this area will be used for the construction of a residence, garage, dock parking, and other facilities described herein).

LEWS are typically found within 69 ft of the shoreline in the summer and hibernating throughout the 6.45-acre property during the winter. LEWS may be encountered throughout the property during spring and fall as they migrate between summer and winter habitat. Under Alternatives 3, mowing of turf-grass may only occur when temperatures are $\geq 60°F$, a temperature at which snakes can move rapidly and should be able to avoid mowers. Additionally, mowing in Zone 1 may only occur on 60 % of the area and vegetation must be maintained at a height ≥ 6 inches to maintain adequate cover for protection from predation. Approximately 4 acres of the 6.45-acre tract will be maintained in turf-grass and less cover for protection from predation will be available. The turf grass provided for in Alternative 3 will be maintained at a height of 3 inches or greater from June through August when LEWS may be present in this area. Turf grass will be maintained at a height of 4 inches or greater during April, May, September, and October, mowing during these months will only occur when temperatures are $\geq 60°F$. We believe the potential for lethal take of watersnakes will be reduced by the height and temperature restrictions on mowing in Alternative 3. The

conversion of 4 acres of the 6.45-acre tract to turf grass however provides greater potential for LEWS mortality than those restrictions found in Alternative 2 and increase the likelihood that LEWS will be encountered while mowing.

4.3.1.3.5 Disturbance/disruption of normal behavior

Effects of disturbance/disruption are as described in Alternative 1. However, as discussed in that portion of the analysis, we anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation that may provide cover for the LEWS (e.g., herbaceous cover, leaf cover, woody debris) to turf-grass lawn or other maintained area. It is in these areas that human presence is most common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. The potential for disturbance has been reduced in Alternative 3 relative to Alternative 1, but not nearly as extensively as in Alternative 2. Because natural vegetative cover will be removed permanently from 4 acres of the 6.45-acre tract (as compared to 6.45 acres in Alternative 1), the only mitigating difference will be 2.5 acres not cleared and the height and temperature restrictions placed on mowing in Alternative 3.

Development of the tract will be primarily for use during the summer. Disturbance/disruption of LEWS by human activities during the summer has been reduced due to timing, temperature, and turf-grass height maintenance restrictions designed to avoid to the extent possible, adverse affects to LEWS.

Human activity on the 6.45-acre tract is expected to be very minimal during the winter when LEWS are hibernating. Therefore, disturbance/disruption to LEWS during this period should be avoided. Furthermore, we believe that the applicants are knowledgeable and sensitive to the needs of the LEWS and that disturbance is unlikely to occur as a result.

4.3.1.3.6 Vehicular strikes

The potential for vehicular strikes in the action area increases proportionately with the number and speed of vehicles present on the 6.45-acre tract, and the proximity of roads to areas frequented by LEWS. No means exist to accurately estimate the number of watersnakes that may be struck. For purposes of this analysis we assumed the number of vehicles per residence is constant among all alternatives since only one residence is to be constructed. The volume of vehicular traffic therefore does not vary among alternatives.

Alternative 3 includes light colored-gravel, as opposed to a blacktop/paved driveway. Additionally, Alternative 3 includes the posting of signs encouraging slow speeds and alerting drivers to the presence of the LEWS. We believe the potential for vehicular strikes is minimized in Alternative 3, because:

- Light colored gravel will reduce the likelihood LEWS will bask on the driveway and/or roads.
- Signs alerting drivers to the presence of LEWS and the need for slow speeds will reduce the incidence of vehicular strikes.
- The closure and abandonment of approximately 700 feet of the shoreline access road along the west shore and the newly constructed access road will reduce the potential for strikes in this area adjacent to the shore and prevent further destruction of shoreline habitat.

4.3.1.4 Cultural Resources

The project would alter the existing setting of Long Point, but it should have limited effects to the cultural setting. Long Point has been allowed to revert back to a wooded condition, a condition that predates most of Kelleys Island recorded history. This wooded condition would continue on the tracts 2.5 southerly acres and south and east of the project area within the Cleveland Museum of Natural History property. Two historic structures are present on the 6.45-acre tract, and Archaeological Site 33-ER-522 is documented as a concentration of lithic debris that requires no further archaeological field work and does not contribute materially to the archaeological record.

The Lincoln House foundation and Stone Wall are located on the property, however; they will be protected from construction activities by the Pre Development Ltd or their heirs or assigns. Ecosphere Associates completed a Phase One cultural resources investigation of the 6.45-acre tract, and presented the document to the Ohio Historic Preservation Office with the conclusion, "that the proposed Predevelopment project will not adversely affect any property that is listed or eligible for listing on the National Register of Historic Places. The Ohio State Historic Preservation Office provided concurrence with this determination in a December 2004 letter to Ecosphere.

The limestone wall (ERI-1664) will not have to be breached to allow use of the northerly portion of the old shore line road access road.

4.3.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 6.45-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island would proceed in a manner similar to that described in Alternative 2.

4.4.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 3, in combination with island-wide actions anticipated in the Kelleys Island Master Plan, are assessed here. In the absence of any other development, the clearing/conversion of 4 acres of forest would be reduced island forest cover from 46.6% to 46.53%.

The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development, however no imminent development plans are addressed in the plan. The Plan anticipates future development of many existing privately owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 3 (i.e., approximately 62% of each wooded lot to be cleared, and 62% of each lot would be maintained in open areas of turf-grass and substantially thinned forest). In addition, we assume that future island "build-out" will occur by 2020 as predicted by the plan. This scenario results in the initial clearing/thinning of approximately 672 acres (62% of the existing forest cover), maintained in this more open state. Island-wide forest cover would be reduced from 46.8% to25.2%.

The draft Master Plan describes preservation of approximately 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.3.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated permanent loss of 4 acres in Alternative 3 would decrease the forest cover on Kelleys Island from 1237 acres (46.6% of the island land area) to 1233 acres (46.53%).

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately owned, wooded properties on the island (PKG 2001). As described in the analysis of cumulative effects to vegetation associated with Alternative 3, approximately 62% of existing woodland across the island would be cleared or substantially thinned and would remain so.

Using the same logic described in the analysis of cumulative effects associated with Alternative 1, we expect a 62% reduction will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely that the 62% permanent reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the Lake Erie shoreline.

4.3.2.3 Lake Erie Watersnake

Anticipated future actions and their potential effects to LEWS are difficult to predict, however The LEWS population on Kelleys Island declined dramatically through the 1800's as a result of European settlement of the Island, habitat modifications, and direct attempts to exterminate snakes. Their decline continued into recent times with further habitat modifications and tourism of the island. However, population estimates generated during studies conducted during the early 1980's and in 1996-1997 suggest the recent number of Lake Erie Watersnakes has remained relatively stable on Kelleys Island (King 1998). Past activities on Long Point and on Kelleys Island are thought to have reduced the population, and resulted in the population present on the site today.

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has roughly 66,800 ft of shoreline, 27,800 ft of which are undeveloped (PKG 2001).

The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property. If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 3, the development near the shoreline would consist of clearing and conversion to turf-grass lawn and/or maintained landscapes, and the development of docks, piers, and similar structures. Therefore, between 2002 and 2020 when build out is anticipated, undeveloped shoreline will be reduced from 27,800 ft to approximately 10,000 ft (15% of the island's total shoreline).

Without seasonal restraints being placed on construction as in Alternatives 2 and 3, it is anticipated that ground disturbing activities would occur year round and without regards for the LEWS, resulting in the direct mortality of hibernating watersnakes and the reduction of suitable over-wintering sites. Without island-wide implementation of conservation measures identified in Alternative 2 many existing hibernacula would be lost/buried. Additionally, it is anticipated that many clearing and construction activities, including mowing, would occur without the implementation of LEWS conservation measures resulting in the removal/loss of natural ground cover. The habitat quality would be degraded as natural cover

protecting the snakes, and potentially harboring prey species of the snake, would be removed. Removal of areas with natural ground cover could expose LEWS moving from and to winter habitat to increased predation. Therefore, it is reasonable to assume that the LEWS population would decrease island-wide if development occurred in this manner resulting from construction during hibernation, lost hibernacula, and increased predation during migration. The anticipated cumulative loss of safe hibernacula from unrestricted and unmitigated development would probably be the primary cause of a long-term reduction in the LEWS population.

If regulatory conditions similar to that expected in Alternative 3 prevail during future development of the shoreline, HCPs and Incidental Take Permits issued for these activities would sufficiently protect the LEWS or their habitat. Although development in accordance with Alternative 3 is anticipated to include some enhancements of summer habitat with the construction of numerous rock crib piers, docks, and similar structures commonly utilized by LEWS during the summer period, we also anticipate that destruction of LEWS winter habitat would cause the LEWS population to decrease island-wide.

4.3.2.4 Cultural Resources

With development of the island likely to occur without involvement of the Service (and in the vast majority of cases without other Federal agency involvement), requirements of §106 of the LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has approximately 66,800 ft of shoreline, 27,800 ft of which are undeveloped (PKG 2001). The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property.

If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 3, the development near the shoreline would consist of forest thinning and conversion to turf-grass and construction (e.g., development of a single boardwalk/ platform and/or habitat enhancement features like rock crib platforms. Existing vegetation would be modified by removal/thinning of trees, conversion to turf-grass and mowing according to standards designed to avoid effects to watersnakes. The mowing restriction in Alternative 3 are not sufficient to reduce the likelihood that LEWS will be encountered while mowing and to maintain adequate cover for snakes, when entire tracts are cleared, thinned and converted to turf-grass.

The potential for interactions between dogs and LEWS has been avoided or minimized by the requirement that dogs be in the control of owners or their designee. Therefore, between 2002 and 2020 when build out is anticipated, the only shoreline development that would occur island-wide would be as proposed in Alternative 3. Shoreline habitat quality would be measurably reduced from the baseline condition island-wide.

We anticipate that adverse impacts to winter habitat under Alternatives 3 would be severe. Disturbance/destruction of hibernacula would be unavoidable and even with placement of seasonal, and temperature restrictions on activities, hibernacula would be lost. If other future development on the Island followed this pattern, the current level of winter habitat would be reduced and the LEWS population could not remain stable.

We anticipate that if LEWS conservation measures similar to those in Alternative 2 were carried out island-wide, adverse affects to the LEWS and its summer, winter, and transitional habitat would be avoided, minimized, and/or offset. We anticipate that, utilizing Alternative 2, the LEWS population would remain relatively stable on Kelleys Island even if development occurs as projected in the Kelleys Island Master Plan (2001).

In the above analysis, we assumed future development of the island would proceed with occasional involvement of the USFWS in the form of habitat conservation planning. Those private landowners, especially those with shoreline property, with proposed development likely to affect the LEWS would engage in the HCP process with the USFWS. Other landowners proposing actions unlikely to affect the species would not.

On those lots where a Federal nexus existed through the HCP process (or through any other process), the USFWS or other lead Federal agency would be bound by requirements of §106 of the National Historic Preservation Act (NHPA) and coordination with the State Historic Preservation Office would ensue. We anticipate this process would enhance the protection and appropriate management of valuable cultural resources. Information is not available at this time to quantify the effects, but it is reasonable to expect cultural resources unprotected by the Act would suffer greater impact.

Table 4-1. Summary of anticipated effects of Alternatives 1 through 3.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development With 15 year ITP	Alternative 3 –Moderate Development With 15 year ITP
Direct and indirect effects			
Vegetation	Island forest cover reduced from 46.68 to 46.5%. Natural vegetative succession outside the 6.45-acre tract and re-seeding in the 6.45-acre tract would not occur along shoreline access road because shoreline access road would be reopened.	Island forest cover reduced from 46.6 to 46.58%. Natural vegetative succession would occur on 700 ft. of the abandoned shoreline access road which has been closed.	Island forest cover reduced from 46.6 to 46.53%. Natural vegetative succession would occur on 700 ft .of the shoreline access road which has been closed.
Migrating birds	6.45 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.	2 acres of temporary, and 1.5 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.	4 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.
Lake Erie Watersnake			
Summer habitat removal and/or degradation	8200 ft^2 of shoreline summer habitat converted with installation of dock and platform. All areas (~3 acres) within 82 ft (25 m) of shore developed.	Up to 8200 ft^2 of shoreline summer habitat enhanced with installation of rock crib platforms. No direct mortality from construction activities within 82 ft (25 m) of shore	Up to 8200 ft^2 of shoreline summer habitat enhanced with installation of rock crib platforms. No direct mortality from construction activities within 82 ft (25 m) of shore

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development With 15 year ITP	Alternative 3 –Moderate Development With 15 year ITP
	Unquantified take from unregulated mowing. Take high relative to action alternatives - no seasonal restrictions on ground disturbing activities.	developed. No direct mortality from regulated mowing. Take low relative to no-action alternative.	developed. No direct mortality from regulated mowing. Take larger than in Alternatives 2.
Winter/transitional habitat removal and/or degradation	Hibernacula on 6.45 acres lost. Hibernating snakes taken if grading occurs in winter. All hibernacula used by adult LEWS would be lost. All existing hibernacula lost/buried. Without seasonal constraints on ground disturbing activities, direct mortality of hibernating watersnakes is likely.	Existing hibernacula lost only within footprints of the house, garage, patio, septic system, and turf grass lawn. Combined footprint of areas made inaccessible to hibernating watersnakes would total 2.0 acres. Hibernacula for 4 adult LEWS would be lost on the 6.45 acres. No direct mortality with application of seasonal constraints on ground disturbing activities.	Existing hibernacula lost only within footprints of the house, garage, patio, septic system, and turf grass lawn. Combined footprint of areas made inaccessible to hibernating watersnakes would total 4.5 acres. Hibernacula for 8+ adult LEWS would be lost on the 6.45 acres. No direct mortality with application of seasonal constraints on ground disturbing activities.
Harassment and/or predation caused by pets	Unregulated pets would result in lethal and non-lethal interactions of pets and watersnakes.	Implementation of management guidelines reduces to the extent practicable the potential for interactions between pets and watersnakes.	Same as described for Alternatives 2..
Mortality caused by lawn mowing	Potential for lethal take and disturbance highest of all alternatives due to unregulated mowing across entire 6.45 acres.	Turf-grass lawn area limited to maximum of 2.0 acres minus the residential amenities. No lethal take anticipated. Occasional disturbance of watersnakes possible.	Turf-grass lawn area limited to maximum of 4.5 acres minus the residential amenities. No lethal take anticipated. Occasional disturbance of watersnakes possible.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development With 15 year ITP	Alternative 3 –Moderate Development With 15 year ITP
Disturbance/disruption of normal behavior	Highest of all alternatives due to loss of natural cover on 6.45 acres.	Reduced relative to Alternative 1. Natural vegetation to be permanently removed from only 1.5 acres in Zone 2. Retained vegetation along property lines may provide travel corridors to further limit take.	Higher relative to Alternative 2. Natural vegetation to be permanently removed from only 4.0 acres. Retained vegetation along property lines may provide travel corridors to further limit take.
Vehicular strikes	Take of LEWS substantially higher than any other action alternative.	Frequency of vehicular strikes will be greatly reduced relative to Alternative 1 due to the use of light colored gravel, posting of speed limits, and closure of 700 ft of shoreline access road.	Same as described for Alternative 2.
Length of Incidental Take Permit (ITP)	No HCP would be implemented and no ITP would be issued.	Length of ITP for Alt. 2 would be 15 years. Conservation measures described in Alt. 2 for the LEWS would be carried out. It is reasonable to expect LEWS on Long Point would benefit from the years during which impact avoidance, minimization, mitigation, and monitoring would apply.	Length of ITP would be 15 years.
Cultural resources	Lincoln house foundation and stone wall would likely be lost or buried; cultural resources left without a protective mechanism.	Lincoln house foundation and Lincoln House Stone Wall preserved. No historic properties affected.	Same as described for Alternative 2.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development With 15 year ITP	Alternative 3 –Moderate Development With 15 year ITP
Cumulative effects			
Vegetation	By 2020, 68% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46..6% to 15%.	By 2020, 31% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46.6% to 46.58%.	By 2020, 62% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46.6% to 46.53%.
Migrating birds	By 2020, 68% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 400 acres of forest would remain island-wide.	By 2020, 31% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 857 acres of forest would remain island-wide.	By 2020, 74.8% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 472 acres of forest would remain island-wide.
Lake Erie Watersnake	By 2020, undeveloped shoreline island-wide would be reduced from 27,800 ft (42%) to 10,000 ft (15%). Unrestricted development may cause some cumulative loss of summer habitat. It is reasonable to expect that unrestricted development would cumulatively produce severe reductions in winter habitat and corresponding reductions in the LEWS population.	By 2020, shoreline construction may enhance and will not measurably reduce the amount of undeveloped shoreline habitat for the Lake Erie Watersnake. Adverse impacts to winter habitat would be offset under Alternatives 2 and 3 because the disturbance/destruction of hibernacula would be avoided, minimized, and mitigated by placement, seasonal, and temperature restrictions on activities. If other future development on the Island followed this pattern, the current level of winter habitat should be maintained and the LEWS population should remain stable.	By 2020, shoreline construction may enhance and will not measurably reduce the amount of undeveloped shoreline habitat for the Lake Erie Watersnake. Adverse impacts to winter habitat under Alternative 3 would be much greater than under Alternatives 2. More hibernacula would be lost due to construction and development activities and lost hibernacula would not be replaced. Adverse impacts winter habitat under Alternative 3 would be noticeably less than Alternative 1 due to seasonal, temperature, size, and placement restrictions on activities, which are absent under Alternative 1. If future island

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development With 15 year ITP	Alternative 3 –Moderate Development With 15 year ITP
		HCPs would be written for development on other areas of Kelleys Island, and ITPs would be issued with measures to avoid, minimize, or mitigate for take of the LEWS.	development followed this pattern, winter habitat would be measurably reduced from lack of mitigation and the Island LEWS population would be expected to decline as a result, but the decline should be less drastic than for Alternative 1.
Cultural Resources	Effects difficult to quantify, likely to be most severe of all alternatives due to lack of Federal agency involvement in most development. Requirements of Section 106 of the NHPA would not apply.	Development with potential to affect the LEWS would be managed through preparation of HCPs. The potential for effects to cultural resources would be evaluated and coordinated with the USFWS and the OHPO. Requirements of Section 106 of the NHPA would apply.	Same as described for Alternatives 2.

5.0 LIST OF PREPARERS

Table 5–1. The following individuals prepared portions of the Habitat Conservation Plan and/or the Environmental Assessment.

Name	Affiliation	Role
Louis Sharpe	Predevelopment LTD	HCP and EA preparation
Paul Testa	Predevelopment LTD	HCP preparation
Dr. Charles E. Herdendorf	EcoSphere Associates	HCP and EA preparation
Angela Zimmerman	U.S. Fish and Wildlife Service, Reynoldsburg, Ohio Field Office	HCP and EA preparation
Jeff Gosse	U.S. Fish and Wildlife Service, Regional Office, Ft. Snelling, MN	EA preparation

6.0 CONSULTATION AND COORDINATION WITH THE PUBLIC AND OTHERS

Section will be completed for final EA.

7.0 PUBLIC COMMENT ON DRAFT EA AND RESPONSE

Section will be completed for final EA.

8.0 HABITAT CONSERVATION PLAN

This HCP was prepared as part of a combined NEPA/ESA compliance effort. It incorporates analyses and narratives included in the EA and specifically addresses Alternative 2, the proposed action.

The Predevelopment LTD parties to this Habitat Conservation Plan (HCP) recognize that they are individually liable for any violation of the terms of this agreement. While any one party may not be held jointly and severally liable for the acts of any other individual who is a party to this agreement, the members recognize that there is an obligation on the part of Predevelopment LTD to enforce the terms of the HCP against a violating party. Further, in the event that Predevelopment LTD fails to enforce the terms of this HCP, the parties recognize that the protections provided by the anticipated Incidental Take Permit may be forfeited.

8.1 BIOLOGICAL GOALS AND OBJECTIVES

This HCP includes measures to manage and conserve the LEWS and its habitat in the project area, and measures to avoid, minimize, and mitigate for unavoidable effects of actions proposed by Predevelopment LTD. The following biological goals and objectives were developed jointly by the Service and Predevelopment LTD, and formed the basis for LEWS conservation measures described in the HCP.

Goal 1: Protect shoreline and near-shoreline habitat for use by LEWS.

- Objective 1.a.: A conservation area should be established on the 6.45-acre property, consisting of all areas within Zone 1. No construction of roads, driveways, or buildings should occur within the conservation area.

- Objective 1.b.: Adverse habitat modification of habitat quality within Zones 2 and 3 should be minimized.

Goal 2: Protect habitat for the LEWS on the 6.45-acre tract by preserving structures that currently exist on the 6.45-acre tract.

- Objective 2.a: The existing stone building foundation of the Joseph Lincoln house Site ER 521 shall not be disturbed by construction activities.

- Objective 2.b: The existing Lincoln stone wall ERI 1664 shall not be disturbed by construction activities.

Goal 3: Reduce the chance of lethal vehicle-caused mortality of LEWS.

- Objective 3.a.: Close and abandon the west shoreline access road Southerly property line to approximately 705 ft north.

- Objective 3.b.: Post road signs promoting low vehicular speeds and alerting users of the potential presence of LEWS

Goal 4: Facilitate research regarding the Lake Erie Watersnake to aid in future preparation of a Recovery Plan and development of guidelines for the management of the species.

- Objective 4.a: The applicant should continue to provide access to the project area, at a mutually agreed upon time, to facilitate research being conducted by Dr. R.B. King of Northern Illinois University, the Ohio Division of Wildlife, and the Service.

Goal 5: Conduct proposed activities in accordance with the Service's Lake Erie Watersnake Guidelines.

- Objective 5.a: All ground-disturbing activities should occur between May 1 and November 1 to avoid the incidental take of hibernating LEWS.

Goal 6: Coordinate with the Service during implementation of the HCP

- Objective 6.a: Notify the Service prior to initiation of substantial development/construction activities on 6.45-acre tract.

- Objective 6.b. Promptly notify the Service regarding mortalities of, and injuries to, LEWS on the 6.45-acre tract.

Goal 7: Minimize the take of Lake Erie Watersnakes by managing construction activities such that the maximum area of habitat is conserved.

- Objective 7.a: Minimize the width of required driveway surfaces.
- Objective 7.b: Minimize the area converted from forest cover to turf-grass lawns.
- Objective 7.c: Minimize the footprint of structures that remove habitat or otherwise make LEWS habitat unavailable to the species.
- Objective 7.d: Utilize pesticides and other similar chemicals only in strict compliance with label directions.

Goal 8: Assure provisions set forth by the HCP and ITP transfer to future owners for the duration of the permit.

- Objective 8.a: Include ITP and HCP compliance as a deed restriction when ownership of the 6.45-acre tract is transferred.

8.2 IMPACTS OF THE PROPOSED ACTION

Direct, indirect, and cumulative effects of the proposed action are discussed in detail in Section 4 of the Environmental Assessment, and are hereby incorporated by reference.

8.3 IMPACT AVOIDANCE, MINIMIZATION, AND MITIGATION

Measures to avoid, minimize, and mitigate for effects to LEWS of the proposed action are discussed in detail in Section 2.6 of the attached Environmental Assessment, and are hereby incorporated by reference.

8.4 MONITORING

By December 31 of each year in which monitoring is required, Predevelopment LTD will submit a written report to the Service discussing the progress of proposed construction, and compliance with impact avoidance, minimization, and mitigation measures included in Alternative 2. Compliance monitoring will be facilitated by site access provided the Service in Alternative 2.

8.5 CONSISTENCY OF THE PROPOSED ACTION WITH THE RECOVERY PLAN

A recovery plan was completed for the LEWS in September 2003. The HCP complies with and supports concepts promoted in the recovery plan and the Service's Lake Erie Watersnake Guidelines (U.S. Fish and Wildlife Service 2003).

8.6 PROJECT FUNDING

Development of the 6.45-acre tract will be funded by the property owner(s). Most objectives in this HCP will be met by tailoring construction/development and use of the 6.45-acre tract to meet objectives and goals in Section 8.1. Certain objectives will require one-time only funding (Table 8–1). Approximately $750 in one-time only costs will be incurred to initiate implementation of the HCP (Table 8-1). Approximately $1,250 will be required to implement each annual reporting event.

8.7 CHANGED OR UNFORESEEN CIRCUMSTANCES

The Habitat Conservation Plan Assurances ("No Surprises") Rule (50 CFR §17.32(b)(5);63 Fed. Reg. 8859 (February 23, 1998)) provides regulatory assurances to holders of ITPs issued under §10(a)(1)(B) of the ESA that, generally, no additional land-use restrictions will be required of the permit holder with respect to species covered by that permit, even if changed or unforeseen circumstances arise after the permit is issued, provided the HCP is being properly implemented.

"Unforeseen circumstances" means "changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and the Service at the time of the HCP's negotiation and development, and that result in a substantial and adverse changed in the status of the covered species" (50 CFR §17.3). Unforeseen circumstances generally include such occurrences as global climate change, non-point source pollution, and disease. Specific to the LEWS, unforeseen circumstances that could result in substantial decreases in snakes on Long Point, Kelleys Island, Ohio, include high mortality of snakes from disease, predation, bio-accumulation of toxins, or drowning of snakes due to high Lake Erie water levels.

"Changed circumstances" means "changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by Plan developers and the Service and that can be planned for (e.g., the listing of a new species, or a fire or other natural catastrophic event in areas prone to such events)" (50 CFR §17.3). This HCP provides measures that will substantively mitigate potential negative impacts to LEWS resulting from development of the 6.45-acre tract under reasonably foreseeable, changed circumstances.

If there is the changed circumstance of a substantial LEWS decline in the future, the Service may suggest and Predevelopment LTD (or current owner) may consider changes in the operating conservation program in the future, provided such changes are consistent with this HCP and agreed to by Predevelopment LTD (or current owner) (50 CFR §17.22(b)(5)) (Table 8–2).

Should the Service determine, based on considerations outlined in 50 CFR §17.22(b)(5)(iii)(c), that unforeseen circumstances have arisen during the permit term, the Service and Predevelopment LTD (or current owner) will consider potential measures to address such unforeseen circumstances consistent with 50 CFR §17.22(b)(5)(iii).

Table 8–1. HCP implementation requiring funding beyond that supporting development and construction activities.

Activity	Funding Schedule	Estimated Cost	Funding Mechanism

Posting one sign notifying visitors of HCP requirements along access road at the entrance to the 6.45-acre property on the access road	One time expense to be incurred.	$250	$250 exists in Predevelopment LTD funding and has been obligated for this task.

Table 8–2. Response to changed circumstances.

Changed Circumstance	Response
The USFWS changes the status of the LEWS to endangered	No change in management and conservation activities described herein
The USFWS delists the LEWS	The incidental take permit, and requirements specified in the ITP and HCP will be cancelled.
Proposed construction is not completed within the duration of the ITP/HCP	The ITP/HCP will be extended for a period of time sufficient to include proposed construction. If full implementation of the construction proposed herein is not anticipated, written verification will be provided to the Service with the final annual monitoring report, and the ITP/HCP will expire in 15 years from the date of issuance.

8.8 HCP ASSURANCES

This HCP incorporates by reference the permit assurances set forth in the Habitat Conservation Plan Assurances ("No Surprises") Rule adopted by the Service and published in the Federal Register on February 23, 1998. Under the No Surprises Rule, if unforeseen circumstances occur, Predevelopment LTD (or current owener) will not be obligated to establish additional land restrictions or provide additional financial compensation in support of the LEWS, provided that Predevelopment LTD (or current owner) is properly implementing the HCP. While development of unforeseen circumstances may promote minor changes to the HCP, modified activities conducted by Predevelopment LTD will be as close as possible to the terms of the original HCP and will be limited to modifications within the project boundary described in the HCP. Additional or modified activities outside those described in the HCP will be at the discretion of the permittees.

8.9 AMENDMENTS TO THE HCP

This HCP may be amended without amending the associated ITP, provided the following conditions are met:

- amendments are of a minor or technical nature, and
- effects to LEWS resulting from the amendments are not substantially different than those described in the original HCP.

Examples of minor amendments to the project HCP that will not require permit amendment include revisions to monitoring or reporting protocols. Predevelopment LTD will coordinate with the Service regarding amendments to the HCP, if any.

8.10 AMENDMENTS TO THE PERMIT

Amendment of both the HCP and associated ITP is required for any change in the following:

- Substantive change in management adversely affecting habitat quality or Lake Erie Watersnakes;
- the listing under the ESA or identification on-site of a species not currently addressed in the HCP that may be affected by project activities;
- modification of any important project action or mitigation component of the HCP, including funding, that may substantially affect authorized take levels, effects of the project, or the nature or scope of the mitigation program; and
- other modification of the project likely to result in adverse effects to LEWS not addressed in the original HCP and ITP.

Amendment of the ITP typically will require a revised HCP and permit application form, payment of the application fee, and a 60-day public comment period. Specific documentation needed to support a permit amendment varies depending on the nature of the amendment.

9. 0 REFERENCES CITED

Ecosphere Associates. 2004. Phase I cultural resources investigations of the Predevelopment LTD project on Long Point of Kelleys Island. Erie County, Ohio. Unpublished report prepared for Predevelopment Ltd. 227pp.

Herkert, J.R., R.E. Szafoni, V.M. Kleen, and J.E. Schwegman. 1993. Habitat establishment, enhancement and management for forest and grassland birds in Illinois. Natural Heritage Technical Publication No. 1, Illinois Department of Conservation, Springfield, Illinois. 22 pp.

King R. 2004. Hibernation, seasonal activity, movement patterns, and foraging behavior of adult Lake Erie water snakes (*Nerodia sipedon insularum*). Annual report to the Ohio DNR, Division of Wildlife and the U.S. Fish and Wildlife Service. 40 pp.

King, R. March 2002. Hibernation, seasonal activity, movement patterns, and foraging behavior of adult Lake Erie water snakes (*Nerodia sipedon insularum*). Unpublished annual report prepared for Ohio Division of Wildlife and U.S. Fish and Wildlife Service. 50 pp.

King, R. 2001b. Hibernation, seasonal activity, movement patterns, and foraging behavior of adult Lake Erie water snakes (*Nerodia sipedon insularum*). July unpublished report prepared for Ohio Division of Wildlife and U.S. Fish and Wildlife Service. 15 pp.

King, R. 2001a. Hibernation, seasonal activity, movement patterns, and adult foraging behavior of adult Lake Erie water snakes (*Nerodia sipedon insularum*). February unpublished annual report to the Ohio Division of Wildlife and the U.S. Fish and Wildlife Service. 38 pp.

King, R. 1998. Distribution and abundance of the Lake Erie water snake, *Nerodia sipedon insularum*, on the Ohio islands of western Lake Erie. Unpublished report prepared for U.S. Fish and Wildlife Service. 67 pp.

King, R. 1986. Population ecology of the Lake Erie water snake, *Nerodia sipedon insularum*. Copeia 1986(3), American Society of Ichthyologists and Herpetologists, pp. 757-772.

Lawhon and Associates Inc. 1999. Phase I environmental site assessment. Unpublished report prepared for Dinsmore and Shohl, Columbus, Ohio.

Maryland Partners in Flight. 1997. Habitat management guidelines for the benefit of land birds in Maryland. Chesapeake Bay Critical Area Commission, Annapolis, Maryland.

Pflum, Klausmeier & Gehrum Consultants, Inc. (PKG). 2001. December 2001 final review draft, Kelleys Island master plan. Prepared for the Kelleys Island Ohio Planning Commission and Village Council. 43 pp.

Robbins, C.S., D.K. Dawson, and B.A. Dowell. 1989. Habitat area requirements of breeding forest birds of the middle Atlantic states. Wildlife Monographs 103, the Wildlife Society, pp 1-34.

Rosenberg, K.V., R.W. Rohrbaugh, Jr., S.E. Barker, J.D. Lowe, R.S. Hames, and A.A. Dhondt. 1999. A land managers guide to improving habitat for scarlet tanagers and other forest-interior birds. The Cornell Lab of Ornithology. 23 pp.

Sandilands, A.P. and S.W. Hounsell. 1994. The effects of 500kV transmission facilities on forest birds in two wetland forest systems in southern Ontario - testing for the edge effect. pp. 1-12 in: Snodgrass, W.J. ed. Wetland Impacts Workshop. Grand River Conservation Authority. Cambridge, Ontario.

Soil Conservation Service, USDA. 1971. Soil survey Erie County Ohio. Washington, D.C.

U.S. Fish and Wildlife Service. May 2003. Lake Erie Watersnake guidelines. Unpublished guidance issued by Reynoldsburg, Ohio Ecological Services Field Office.

U.S. Fish and Wildlife Service. Final rule, threatened status for Lake Erie water snakes (*Nerodia sipedon insularum*) on offshore islands of western Lake Erie. 50 CFR Part 17 Vol. 64, No. 167, August 30, 1999, pages 47126-47134.

APPENDIX A

Agency Correspondence

APPENDIX B

U.S. Fish and Wildlife Service Lake Erie Watersnake Management Guidelines

APPENDIX C

Legal Description of 6.45-acre Predevelopment LTD property

APPENDIX D

Ohio Department of Natural Resources, Office of Coastal Management
Coastal Consistency Letter to Predevelopment LTD

APPENDIX E

Phase I Cultural Resources Investigations of the Predevelopment, LTD Project
on Long Point of Kelleys Island, Erie County, Ohio.

APPENDIX F

Deed restriction for adherence to terms of the HCP and Incidental Take Permit